

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 6, NO. 3  MARCH, 1949

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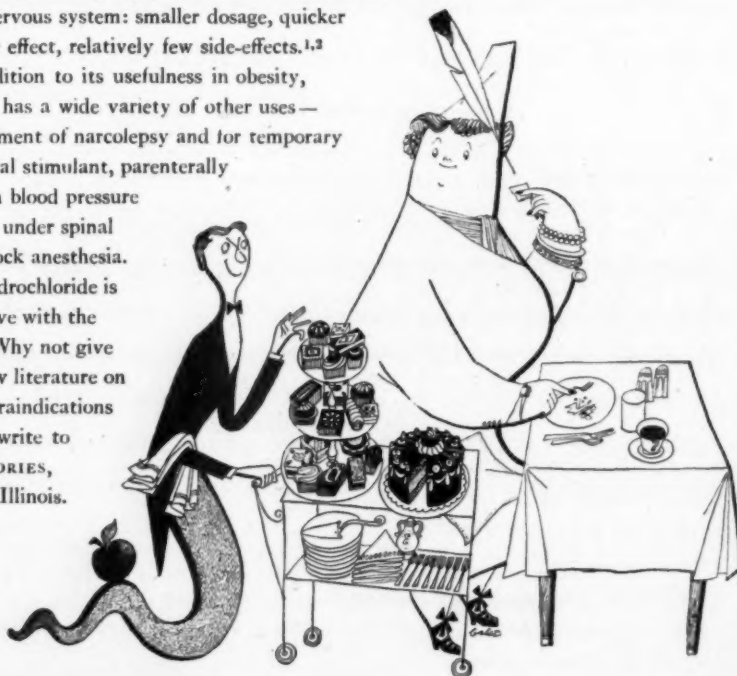
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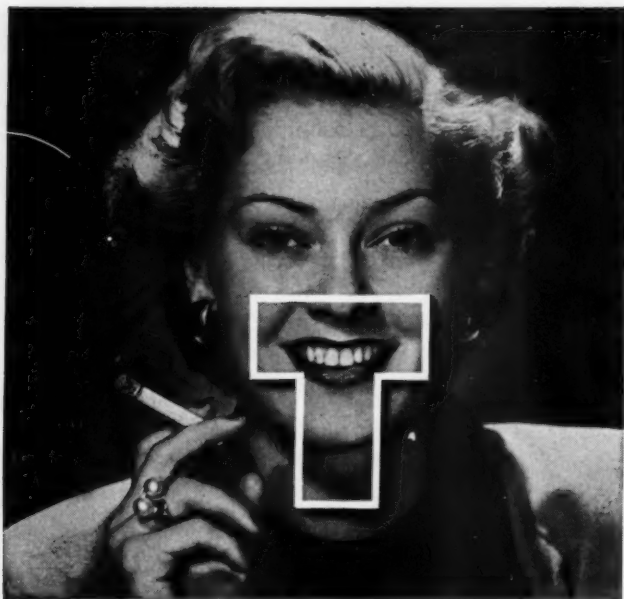
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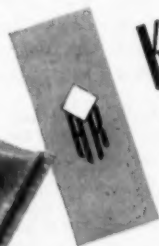


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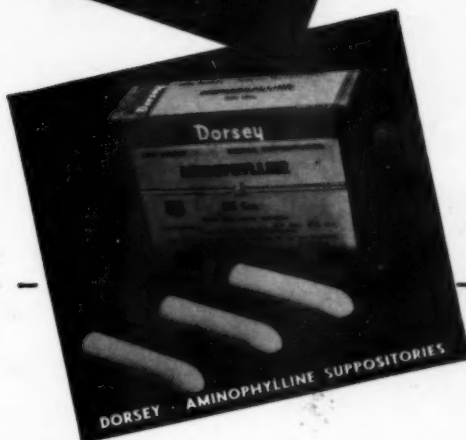
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1. Follis, R. H., Jackson, D., Eliot, M. M., and Park, E. A.: *Am. Jour. Dis. Child.*, 66:1, July, 1943.

2. Stearns, G.: *Jour. Lancet*, 63:344, Nov., 1943.

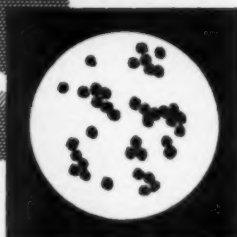
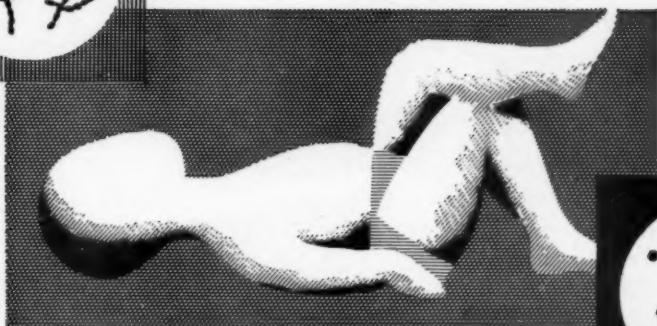
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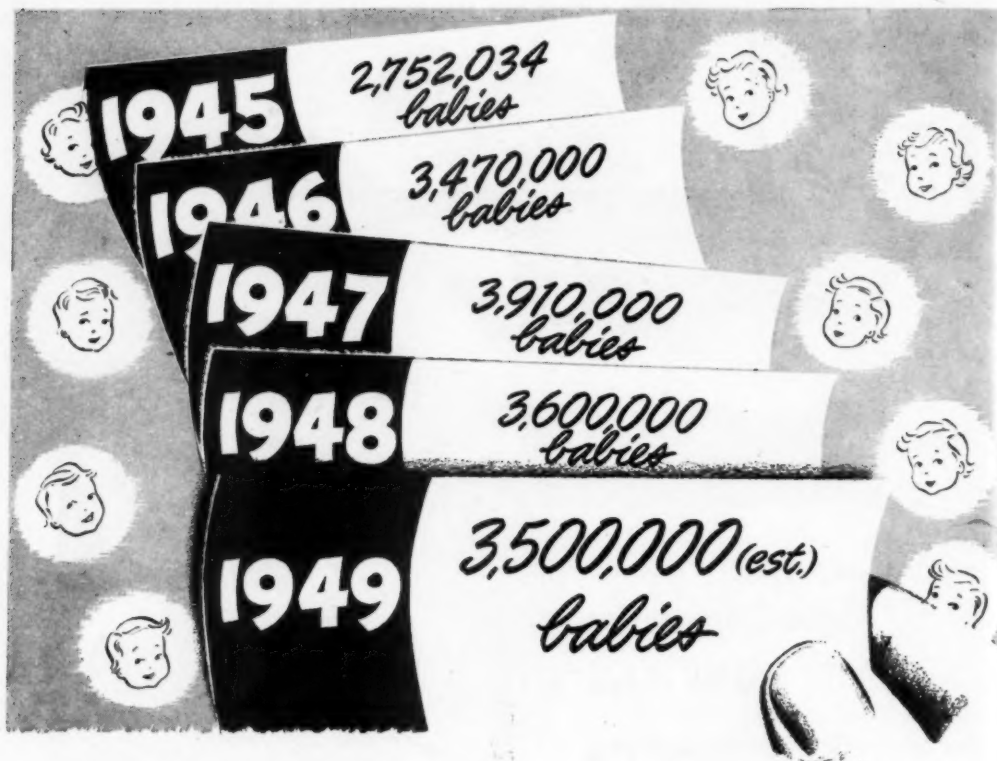
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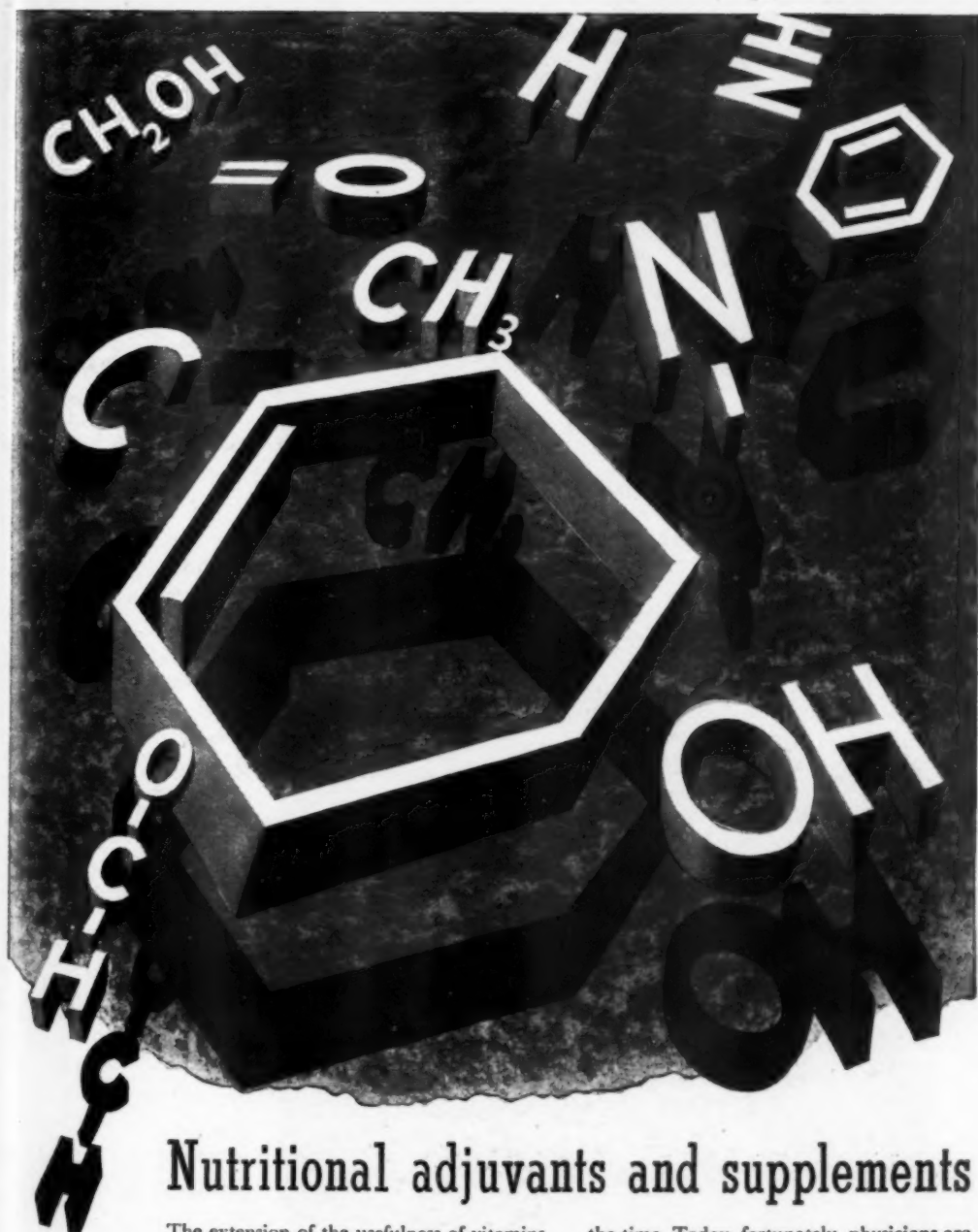
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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 6, NO. 3  MARCH, 1949

THE TREATMENT OF CRANIOCEREBRAL INJURIES*

JOHN MARTIN, M. D.**

Northwestern University Medical School

CRANIOCEREBRAL injuries are not reserved for the attention of the neurological surgeon alone. Any physician may be called upon to care for a patient with an acute head trauma, and it is within the ability of any physician to give such a patient intelligent care when the treatment does not involve major neurosurgical procedure. The frequency of such injuries is increasing, but because of improved methods of modern treatment and with the exclusion of some formerly used methods, the mortality rate has dropped among those patients who have not suffered a massive, irremedial brain injury. The occasional patient will have suffered such extensive destruction of the brain that recovery would be impossible in spite of any care that could be given.

There is little to be gained by classifying craniocerebral trauma on the basis of the type of fracture, since some of the most severe injuries are accompanied by no bone injury whatsoever. On the other hand, severe fractures may be present with minimal neurological change. Craniocerebral injuries range from the patient with the so-called mild concussion, with or without temporary loss of consciousness, to the patient who is profoundly shocked, who remains unconscious for hours or days with signs of organic destruction, or who may have an open wound ranging from a minor scalp abrasion to a compound, comminuted fracture with indriven bone fragments and herniation of the lacerated brain.

As with any other injury, the patient with head trauma may suffer the signs of traumatic shock, and if such a condition exists, he should

be treated as any other patient with shock would be treated, and with replacement of any lost blood if that is necessary. The patient should be flat in bed, but the head of the bed should never be lowered, since that will only tend to increase cerebral vascular congestion. The patient in all instances must be put in a warm bed, turned with the face on the side and with the tongue held out of the throat if the airway tends to obstruct. He should at first opportunity be given a thorough neurological examination without excessive manipulation. Consciousness and the co-operation of the patient are not necessary to a complete examination, for the unconscious patient can be fully appraised by studying the pupillary reflexes, the tone of the facial musculature, the various skin and tendon reflexes, the tone of the muscles of the extremities, the pulse, blood pressure and respirations, and the evidence of any localized flaccidity, spasticity, or convulsive movements.

X-ray study of the head must be deferred until the patient is completely out of shock and until after he has had a period of rest in bed during which his neurological state has been learned. No patient should ever be whisked from emergency room to x-ray table to determine whether or not he has a fracture, unless it is the very rare instance of a severely depressed fracture with convulsions or intracranial bleeding which demand immediate surgical care. Even so, x-ray pictures are seldom a necessity. The presence or absence of a fracture of the skull seldom alters the care of the patient, since the injury to the brain is the important issue. When x-ray pictures are taken, they should furnish antero-posterior, postero-anterior, and stereoscopic lateral views. It is well also, especially in the unconscious patient, to take at the same time

* Read as a lecture in Medical Sciences at the Lois Grunow Memorial Clinic, Phoenix, Arizona, February 20, 1947.

** From the Department of Neurosurgery, Northwestern University Medical School.

pictures of the cervical spine, since the chances for cervical injury are great in accidents resulting in craniocerebral injury.

The recently admitted patient may have suffered a momentary loss of consciousness, or he may remain unconscious for a varying period of time after he is first observed. Many such patients, especially those who have suffered severe injury, will be intermittently irrational and very restless, and at such times it is tempting to give medications which will quiet them. Above all other drugs morphine must never be given to such a patient. Morphine depresses the respiratory centers and may kill the patient. Such patients are not restless because of pain; they are restless because of the irritative phenomena which are peculiar to cerebral injury. No drug should be given which will mask the valuable signs of pupillary reflex change, focal spasticity or paralysis, or convulsions, for such signs are of primary importance in the localization of what may become an intracranial surgical lesion. Sodium amytal may be administered intravenously in restricted amounts, sufficient to quiet the patient but not to make him completely stuporous, but even it is not without its undesirable effects. Mild restraint should be applied, but the patient must never be tightly restrained. It must be determined whether the patient is restless because of a full bladder, because of wet sheets, because of an unnoticed fracture of a bone of the extremities, or because of some other simple and obvious cause. The blood pressure must be recorded hourly in the unconscious patient, respirations watched for any depression, and pupils noted for any change in response to light stimulation. A lapse from lucidity into unconsciousness or even mild stupor is one of the cardinal signs of post-traumatic intracranial bleeding. Convulsions or one-sided spasticity are also signs for which the nurses should be on the alert.

The patient with the milder head injury, with or without a fracture, should be allowed out of bed at his own discretion as soon as he feels like getting out, but he should not be allowed to escape the observation of the doctor for several days, until all possibility of delayed complication is past, such as a subdural clot formation. The patient usually complains of headache, diminishing as his strength and general well-being return. Anodynes, coddling, and great concern for these headaches on the part of the doctor may help

the headaches to become established on a chronic basis.

If the patient remains unconscious he will need the usual attention to fluid intake and other nourishment, and care should be taken that protein intake is kept sufficiently high and chloride intake within normal limits. Fluids ordinarily should not exceed a 24-hour total of 1200 to 1500 cc. if there is reason to believe that cerebral edema is present. The head of the bed may be elevated slightly after the blood pressure has become stabilized, penicillin should be given as a prophylactic against pneumonia, the patient must be turned frequently, and the care of the skin must be meticulous. Lumbar puncture is not useful in reducing the intracranial pressure since the effect of such a procedure is very short, the fluid being rapidly reformed. It is much better to administer from 150 to 200 cc. of 50% sucrose solution, without dilution, as an intravenous drip over a period of two hours, and such medication may be repeated twice during a twenty-four hour period if necessary. Intravenous magnesium sulphate is not without danger of producing convulsions; dehydrating enemas may cause the patient to strain and become restless. Ordinarily any other form of medication is contraindicated.

The occasional patient with a basilar fracture that extends into the petrous bone will have a flow of blood or cerebrospinal fluid, or both, from the affected ear. Such an ear must never be inspected with instruments, swabbed, cleansed, or irrigated. A soft, copious, absorbent occlusive dressing should be placed over that side of the head and ear, the patient elevated slightly in bed and kept continuously in bed, and cautioned to lie either on his back or the opposite side. Most such complications are self-limited and the draining stops after a few days. The possibility of meningitis must be warded off by the administration of penicillin or the sulfonamides given continuously until after all show of drainage has ceased. Some such patients will suffer a concurrent facial nerve injury, with varying degrees of paralysis. If a severe fracture involves the frontal or ethmoidal sinuses there may be a cerebrospinal rhinorrhea which, again, must be treated by quiet, rest in bed, the upright position, prophylactic penicillin or sulfonamide medication, and the strict avoidance of all nasal instrumentation or blowing of the nose. Fortunately most such fistulae close spontaneously,

but when they do not closure must be effected by means of an intracranial operation.

Whenever a patient develops signs of decerebrate rigidity the prognosis is almost certainly fatal. Such signs indicate extensive brain stem or bilateral intracerebral injury of a non-surgical nature. Little can be done to stop the convulsions of decerebrate rigidity, and the unconscious patient usually does not survive more than 36 to 48 hours after the onset of the convulsions. Many patients, however, will remain quietly comatose and respond to no treatment, showing, upon post-mortem examination, extensive laceration of the under surface of the brain where the soft brain, upon receiving the impact of the blow, was cut on the many sharp bony projections of the floor of the skull.

Since the former favorite operation of subtemporal decompression for severe craniocerebral injury has been discontinued the mortality rate has improved. Such a traumatizing operation, performed by the most skillful person, can hardly escape adding injury to an already swollen, softened, bleeding brain. Decompressive methods, if necessary, are best carried out by physiological means as already described.

Any scalp wound deserves careful surgical treatment, no matter if it is a small laceration requiring but two sutures, a brush burn requiring only cleansing and a vaseline gauze dressing, or a large, ragged, grossly soiled wound with or without underlying bone injury. On first examination one can never say whether or not later neurological signs may appear leading to an intracranial operation, so that the local scalp, through which such an operation would have to be performed, must always be treated with meticulous care as to cleanliness and early closure. The hair should be clipped and shaved widely away from the wound, the wound should be thoroughly cleansed and debrided, and a large firm dressing should be applied to apply pressure and exclude the fingers of the patient. Drains are never to be used in the repair of craniocerebral injuries. Nothing but the most minor wound should be treated in the emergency room, all others being sent to the operating room where any unforeseen complication may be properly handled. In most patients cleansing and suture can be accomplished without difficulty, and the local injection of 1% novocaine suffices for anesthesia in most scalp wounds. In the major operations, however, such

anesthesia may not be possible especially if the patient is restless, irrational, or completely uncooperative, and under such circumstances a patiently administered endotracheal anesthesia is by all means the safest. Pentothal is a dangerous anesthesia for use in the surgery of craniocerebral injury.

If there is a comminution of bone all completely separated or grossly soiled bone should be removed. The lacerated dura mater should be repaired by direct suture if that is possible, or occasionally a small piece taken from the pericranium or aponeurosis of the temporalis muscle serves well for a small free dural graft. The underlying brain may be lacerated, or it may contain a clot or such foreign material as bone chips, street dirt, clothing, hair, or metallic foreign bodies. They should be removed together with the devitalized brain tissue by gentle irrigation and suction, with special care taken to control all small bleeding points, and to extend the debridement no further than the actually damaged brain. All such wounds should be closed in anatomical layers with fine black silk sutures. 10,000 to 15,000 units of penicillin may be placed in the wound tract within the brain, but the sulfonamides should not be sprinkled into or upon the brain. They may be applied in the wound extradurally, however, if the wound was badly soiled. It is much better to depend upon the oral and parenteral administration of the sulfonamides and penicillin, however, to avoid the complication of wound infection, meningitis, or brain abscess.

The ordinary depressed fracture of the skull, without laceration of the scalp, is seldom a surgical emergency, and many such depressions cause no neurological symptoms and never require surgical correction. If they are deeply depressed, however, and especially if they are followed by weakness of the extremities of the opposite side, headache, or convulsions, they should be treated by exposure through a semicircular scalp flap with removal of the depressed fragments. Attempts to pry these fragmented, tightly wedged down pieces of bone is not only often unsuccessful, but more often end in additional injury to the underlying dura and brain. It is best to place a small burr hole in the bone immediately adjacent to the fracture edge, slipping an elevator under the fracture from this more advantageous approach.

Intracranial hemorrhage is one of the few

surgical emergencies related to craniocerebral surgery. The development of a clot, extra- or subdurally, always calls for the removal of that clot at the earliest possible time. If a patient has had a period of consciousness, followed by a slowly developing stupor and increasing spasticity on one side of the body, the development of a dissecting, enlarging extradural hematoma may be suspected. The patient may also develop convulsions on the spastic side and some pupillary enlargement on the contralateral side. Most such patients show a fracture line crossing a vascular channel in the calvarium on the side opposite the spasticity. Such a set of symptoms is sufficient evidence of an extradural hemorrhage, and if the bleeding is not stopped such a lesion almost invariably leads to death within a few hours. Some neurological surgeons advocate a simple craniectomy over the fracture site, to find the bleeding point and stop it. However, this may fall far short of the needs of the case, and it is better to turn down on osteoplastic flap, which can be done without blood loss or any more trauma than the craniectomy. With such a flap access may be had to the entire lateral half of the brain. Some clots will have dissected the entire dura mater off the bone, with hundreds of bleeding points on both the dura and the bone. If the clot has dissected to the midline there may be persistent bleeding from the dural veins along the sagittal sinus where the large pachionian bodies lie. With the wide exposure afforded by a flap one may be certain to evacuate the entire clot, stop all bleeding points, and eventually have a healed wound without cranial defect.

The formation of a subdural clot is usually more insidious, and while such lesions do manifest themselves in the acute stages in some patients, it is commoner to find them a few days, or even weeks and months later after the injury. Persistent headache, low fever, localized cranial tenderness, pupillary enlargement on the ipsilateral side, motor, sensory and reflex changes on the contralateral side, together with swelling of the optic nerve heads and other signs of increased intracranial pressure will lead to the diagnosis of a subdural hematoma, either early or late. Very frequently too, the cerebrospinal fluid will contain the debris of old blood and will be stained pink or appear xanthochromic. If the hemorrhage is acute the bleeding point may, as in the case of the subdural hematoma,

be found only through the exposure furnished by an osteoplastic flap. It is characteristic of such clots, however, to enlarge to the point where apparently the pressure from the clot itself obstructs further bleeding, and they tend to become walled off by the normal arachnoid and a pseudomembrane which forms about them. Most subacute or chronic subdural hematomas can be evacuated by means of drainage and through and through irrigation through a frontal and a posterior parietal burr hole in which the dura mater has been opened. Such an operation can be quickly done, using local anesthesia only, and the results are frequently dramatic. It is not uncommon to find such hematomas over both sides of the brain. In rare instances the clot will be too solid for evacuation by such means, and a flap must be turned down for complete exposure and removal. The old clot may be thick and livery, or it may be found to exist in a solid, cheesy, tumor-like mass under which the discolored brain is distorted out of all proportion to the relatively minor neurological changes which the patient may show.

There is a current tendency to cranioplasty for cranial defects, using tantallum plates, acrylic resin plates, and other such devices. The practice is not new, except in that the recent war gave a great impetus to the procedure. Cranioplasty has its proper place in the clean wound, where the cranial defect is so placed and of sufficient magnitude to warrant such repair. Many minor cranial defects have been repaired, however, when such a procedure was unjustified because of the small size of the defect. Epilepsy, headache, and other neurological sequelae are by no means always cured by such an operation. Furthermore, no plate should be put in at primary operation for repair of an acute craniocerebral injury. Such wounds are never clean enough to allow the insertion of a large foreign body, and especially is that true if the defect borders upon an injured paranasal sinus. It is much better to wait for several months after injury, inserting the plate when the wound is completely clean and when one can expect it to give no trouble after insertion, than to insert it at the time of primary repair and then have to remove it from a field of pus and sloughing scalp a few weeks or months later, as has been the experience with so many of the unwisely performed cranioplasties resulting from war wounds.

DIFFERENTIAL DIAGNOSIS OF RADIATING PAIN FROM NECK AND SHOULDER GIRDLE INTO THE UPPER EXTREMITIES*

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THE differential diagnosis of pain in the shoulder girdle associated with radiation of pain into the arm, forearm, or hand, is one of the most difficult problems in orthopedics. It will be impossible to consider all of these conditions in this short discussion. Codman² described only a few of the more common lesions of the shoulder, omitting detailed considerations of such lesions as osteomyelitis, tuberculosis, tumors, and fractures. Knowledge of these lesions is essential in establishing a diagnosis, however only the more common orthopedic conditions will be presented in this paper.

Pain in the arm and the shoulder is a common complaint—being almost as common as pain in the back and the legs, and is too frequently called neuritis. This misconception has been corrected with respect to back and leg pain, due primarily to a better understanding of the mechanical factors involved in weight bearing. The various pathological lesions which commonly cause pain in the arm are still poorly understood.

There are two types of pain in the neck, the shoulder, and the arm caused by orthopedic conditions: (1) Referred pain, which is produced by irritation of the sensory roots in the cervical segments of the spinal cord, and, (2) pain caused by pathologic changes in the shoulder joint or its adjacent structures. Each of these types may be caused by trauma or disease.

Anatomy and Physiology

The cervical cord is composed of eight segments with eight anterior roots and seven posterior roots; the last cervical posterior root is usually absent. The first cervical motor root leaves the canal between the occiput and the atlas. The eighth cervical nerve root exists between the seventh cervical and the first thoracic vertebra. A disc lesion at the fifth cervical (between the fifth and sixth cervical vertebra) compresses the sixth cervical root.

In the intervertebral foramina the nerves are particularly subject to irritation. Here the nerve roots emerge from the intervertebral canal to the outside of the spinal column through chan-

nels formed by the notches in the adjacent surfaces of the contiguous vertebra. These notches are directly anterior to the articular processes and posterior to the bodies of the vertebra, being so fitted that they form a bony tube. The tube is completed posteriorly by the binding together of the articular processes with the capsule which encloses the joints, and anteriorly by the intervertebral discs. This conduit is semi-rigid.

The posterior wall of this tube chiefly is formed, by the joint capsule. When the capsule is swollen or distended by articular fluid, it protrudes into the lumen. Also, if the intervertebral disc, in the anterior portion of the tube, should be compressed producing a herniation posterolaterally, there would be a reduction in the size of the foramen through which the nerve passes. When some abnormal condition exists, compression of the nerve root is produced in this region.

When the neck is flexed, the upper and lower walls of the foramina are separated, while the anterior and posterior walls are pushed together. Consequently, the lateral protrusion of a disc causes pressure in hyperextension. When the capsule of the joint is swollen or edematous, flexion or lateral deviation to the opposite side stretches it between the two vertebral articular processes, resulting in more room for the nerve in the foramen. This explains the posture of patients who have certain chronic conditions.

The scalenus anticus muscle has its origin from the transverse processes of the third to sixth cervical vertebra and its insertion into the scalene tubercle on the upper surface of the first rib close to the sternum. As the nerves pass laterally from the intervertebral foramina to enter the posterior triangle of the neck, they pass between the scalenus anterior and scalenus medius muscles. The brachial plexus and the subclavian artery lie behind the lower portion of anterior scalene muscle and on the other scalene muscles in a triangular space made by the first rib below and the converging muscles above.

Spasm, increased tension, or unusual hypertrophy of the scalenus anticus muscle may cause direct pressure on the brachial plexus and may

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cause indirect pressure by undue elevation of the first rib.

We are indebted to Steindler and Luck who called our attention to the role that the posterior divisions of the spinal nerves play in the mechanism of pain in the lower back. They first pointed out that irritations of these nerves are apt to produce sharply localized superficial pressure points at ligamentous or aponeurotic attachments or more diffuse areas of tenderness in the muscles of the back. The cervical portion of the spinal nerves may be similarly involved.

The posterior rami, with the exception of the first two cervical nerve roots, are smaller than the anterior rami. They innervate the skin and axial muscles of the back and cervical region. They do not supply the muscles of the upper limb, although in their cutaneous distribution they are prolonged onto the back of the head and the shoulder. The anterior rami supply the upper extremity, and the muscles of the shoulder girdle.

Codman³ in 1906, published the first adequate description of the subacromial bursa. He has since emphasized its mechanical importance and its relation to pathologic changes in the supraspinatus tendon.

The capsule of the shoulder joint in its superior portion blends with and becomes indistinguishable from the conjoined tendon of the short rotators as they course to their insertion into the tuberosities of the humerus. The tendon of the supraspinatus muscle reinforces the central portion of the capsule and is inserted into the anterior and uppermost part of the greater tuberosity. This attachment is just posterior to the bicipital groove, which may be palpated two fingerbreadths lateral to a line drawn vertically upward from the center of a cubital fossa, when the arm is in flexion to a right angle.

The thin synovial lining of the subacromial bursa is tightly adherent to the tuberosities of the humerus and to the adjacent part of the conjoined tendons near their insertion forming its base, and to the under surface of the acromion and adjacent structures to form its roof. The bursa is partially circular, in part concavoconvex and somewhat smaller than the palm of the patient's hand, extending below the edge of the acromion as much as one and one-half inches at its lowest point. It is separated from the shoulder joint only by the conjoined tendons of the short rotator muscles.

The acromio-clavicular articulation is bound together by ligaments which are vulnerable to injury.

Injuries and Diseases of the Cervical Spine

Because it is more dependent on muscular support than the thoracic spine, the cervical spine can easily fall into malpositions which cause strain. The cervical spine does not carry as heavy a load as the lumbar area and does not have the same long lever in such maneuvers as bending forward or in lifting objects; but its greater mobility and more delicate structure render it susceptible to similar stress changes. The inferior portion of the lordotic curve of the lumbar spine is a most vulnerable area. In the cervical spine, it is likewise, the anterior curve that is most susceptible to wear. The flexibility of this region brings with it inevitable loss of stability so that strains in these articulations of the neck are not uncommon. The relative fragility of these structures is responsible for the frequency of fractures and dislocations of the cervical spine.

Rupture of the Intervertebral Disc

Anatomically there is much less of the nucleus pulposus present in the cervical region than in the lumbar area. Consequently, a central protrusion of a nucleus sufficient to produce symptoms of cord deficit is relatively rare.⁶ However, it is not too uncommon to have a lateral rupture of the intervertebral disc producing minor symptoms. In this type of injury pressure is produced on the involved nerve by hyperextension of the cervical spine or by deviation of the head to the involved side. When the head is in hyperextension and laterally deviated to the painful side, firm pressure over the top of the head will accentuate the symptoms.

Pain and stiffness of the neck are usually the first symptoms of herniated disc in this area. Not infrequently, after the initial bout of stiff neck, the patient will experience no further local discomfort. The symptoms may consist entirely of pain in the shoulder, radiating down the arm and may be felt in the hand. Any sudden movement of the head or neck, coughing, straining or sneezing may intensify this pain, producing a feeling similar to an electric shock. The pain is usually made worse if a single position is maintained. The points of maximum pain are at the base of the neck, the tip of the shoulder and the arm

down to the elbow. Although occasionally, pain may extend into the hand, the paresthesias and numbness of the hand are usually more aggravating than the pain. Weakness of the arm, atrophy and fibrillation of the muscles are frequently noted and may be severe. If the lesion is large and compresses the cervical cord the usual symptoms of spinal cord deficit are present. The symptoms are identical with those of a cervical cord tumor.

Facet Syndrome

Symptoms of cervical nerve root compression produced by bony spurs in the intervertebral foramina is not uncommon. Minor injuries to the cervical spine with swelling of the capsules of the facet joints or rheumatoid arthritis with edema of this same area may produce symptoms of radiculitis. Nachlas⁵ called our attention to this condition and referred to it as brachalgia. When this injury exists the cervical spine is usually flexed at the cervico-thoracic angle, and the head may be deviated laterally. These positions elongate the distended capsule, giving more room for the cervical nerve. The muscles of the neck are spastic and movements of the neck are restricted in some or in all directions. The loss of motion may involve the entire cervical spine but is usually limited to the lower portion. Palpation of the neck will reveal a number of sensitive areas. As a rule the spinous processes are not very sensitive but pressure over the articular processes will reveal points of tenderness over some while the others are not tender.

Injuries and Diseases of the Shoulder Region

Lesions of the shoulder joint and its adjacent structures are far more frequently the cause of pain in the shoulder and arm than are lesions of the cervical segments of the vertebral column.

Rupture of the Supraspinatus Tendon

Rupture of the supraspinatus tendon² is not uncommon, but it is usually incomplete. This occurs more frequently in laborers who are over 40 years of age. The pain is of short duration following the accident; however, the following day the shoulder becomes painful, accompanied by an inability to abduct the arm actively. Examination discloses a faulty scapulo-humeral rhythm, tenderness over the tip of the shoulder at the insertion of the supraspinatus muscle posterior to the sulcus. Pain is produced

as the tuberosity disappears under the acromion and reappears as it emerges. Radiation of pain into the arm is a common complaint.

Subacromial Bursitis

Under abnormal circumstances, the subacromial bursa⁹ may become inflamed, but it rarely becomes distended with fluid. A partial rupture of the musculo-tendinous cuff is a common etiological factor. Its walls may become adherent or it may be irritated by underlying calcium deposits at the site of a previous partial rupture of one of the tendons.

The symptoms of subacromial bursitis are local and referred, producing pain at the point of the shoulder, which is accentuated by motion, particularly in abduction or internal rotation, and there may be radiation of the pain to the region of the insertion of the deltoid.

Chronic subacromial bursitis with calcification in the underlying tendons, more frequently in the supraspinatus tendon, is probably the most frequent local cause of pain in the shoulder. This calcification, however, does not always cause symptoms as many patients have bilateral involvement with only one symptomatic shoulder. Minor trauma may cause these silent deposits to become painful. There is usually a history of slight trauma immediately preceding the onset of symptoms.

As has been pointed out previously¹ calcifications in the region of the shoulder are characterized by three types of pain. The most severe type is a continuous, dull, boring, aching type of pain, present only in the very acute cases; due to pressure within the encapsulated area. In addition to this, there is a referred type of pain felt near the insertion of the deltoid which is also common to other lesions causing subacromial bursitis. An interesting complication is the third type of pain resulting from spasm of the anterior scalene muscle which may result in pain in various parts of the forearm or hand and is often present in the ulnar nerve distribution. X-rays made with the humerus in various degrees of rotation will show this calcification when it is present.

Periarthritis

Periarthritis² is one of the most frequent lesions causing pain and disability in the shoulder. Masquerading under such terms as periarthritis, tendonitis, periarticular lesions, adhesive bursitis, and frozen shoulder, this condition

seems to be poorly understood by the medical profession. It is a frequent impression, that the disability is often prolonged, or even produced, through ill advised management of shoulder lesions. Usually by the time the patient consults a specialist the disease is fully developed, producing pain in the shoulder, stiffness, and loss of motion. The pain may vary from a catch to a dull ache which is aggravated into sharp pain by motion. Pain during the night frequently is present and the patient has noticed an inability to place his hand behind his back, over his head, or even to his face. The etiology of the lesion is often unknown. At times it follows untreated subacromial bursitis or other conditions which cause a muscle spasm and voluntary immobilization. Presumably there are adhesions between the walls of the bursa, along the tendons of the shoulder, in the capsule and the musculo-tendonous cuff. Injury, over use, or even mild infection may precede the onset of the disturbance which is increased by the assumption of a sling-position and by disuse of the joint. Swelling and point tenderness are absent but abduction and rotation of the humerus are markedly limited. With the scapula fixed, abduction is frequently limited to 35 to 45 degrees. Forced motion beyond this point is painful. Anterior and posterior motion in the arm is not nearly so restricted. A roentgenograph is usually normal.

Muscle Sprains and Fibrositis

A discussion of pain in the shoulder would be incomplete without mentioning the local muscular disturbances. Undue or unaccustomed usage of the shoulder may produce a sprain inciting pain and stiffness. A sprain in any of the muscles of the shoulder girdle may lead to a temporary disability of that extremity; these respond readily to conservative treatment. Motion of the shoulder should be preserved by appropriate exercises.

Rupture of the Long Head of the Biceps Brachialis

A rupture of the long head of the biceps brachialis may be produced by any trauma when the muscle is contracted. The pain is usually localized to the region of the bicipital groove, but may radiate down to the outer side of the elbow. Any forceful contraction of the muscle will be painful and local tenderness will be present. Marked atrophy of the biceps develops rather rapidly. The arm is weak, and the shoulder is painful on abduction.

Acromio-Clavicular Disturbances

Acromio-clavicular injuries, either recent, or old with the resulting hypertrophic arthritis plus superimposed minor trauma, often cause a painful shoulder. This pain is usually localized in the joint region and is accentuated by motion. Local tenderness will be elicited by firm palpation, even in the chronic state.

Scalenus Anticus Syndrome

This mechanical neuritis at the brachial plexus, with or without vascular disturbances, is manifested commonly by pain about the shoulder;¹ however, the pain may be located anywhere from the neck to the fingers. It is occasionally accompanied with a tingling and numbness along the inner side of the arm, along the forearm and in the fourth and fifth fingers. Vascular disturbances may be present, such as diminished or absent radial pulse, coldness and cyanosis of the arm and the hand.

The scalenus anterior syndrome was thought originally to be an isolated clinical entity which perpetuated itself. It is now the consensus that spasm of the anterior scalene muscle is seldom a primary condition. Unquestionably, the so-called "scalenus anticus syndrome" exists as a common complication of any of the more prevalent afflictions of the shoulder girdle or the cervical spine.⁴ Its presence often obscures a diagnosis of the primary disease hence it may be often undiagnosed.

Painful "Trigger Points"

It has long been recognized that many patients with a "painful shoulder syndrome" present tender areas in the muscles around the shoulder.⁸ These "trigger points" in the muscles may cause pain not only locally, but also it may be referred to other somatic areas.

The majority of cases will present more than one trigger point. Such an area is more resistant than the surrounding muscles and is excruciatingly tender when strong pressure is applied which may increase or illicit pain in the reference zone. Either active contraction or passive stretching of the muscle in which the trigger point is located may induce referred pain.

The muscle that most commonly causes pain in the shoulder region and the arm is the serratus posterior superior. A tender point in this muscle is present in more than one-half of the cases. This trigger point is usually located in the upper lateral portion of the muscle which may be ev-

ered by the scapula. Next in frequency, as a source of referred pain, is the infraspinatus muscle where a tender point is found in the muscle in about half of the affected shoulders, and the radiation of the pain is to the shoulder and the arm.

The exact mechanism of the production of pain from these trigger points is not clear. Various theories have been suggested. The possibility of vaso-constriction within the muscle, resulting in ischemic pain has been advanced. It has also been suggested that the tonic contracture of the skeletal muscle which is in spasm may result in ischemic pain. There are certain observations, common to all authors on this subject—that novocaine injection into the tender area breaks the vicious cycle by relaxing the localized muscle spasm or by virtue of its action in blocking the afferent nerve impulses to the area.

Differential Diagnosis of Radiating Pain in the Shoulder Girdle

The physical examination should include a careful orthopedic and neurologic examination of the involved parts. Because disease of the shoulder is the most common cause of pain in the shoulder girdle with radiation into the arm, lesions in this area should be ruled out first. By grasping the scapula with one hand and the humerus with the other, the exact amount of motion in the scapulo-humeral articulation may easily be determined. Passive motion is carried out in abduction, rotation, forward and posterior flexion. If these motions are unrestricted, if pain is not elicited, and tenderness is not present over the region of the insertion of the supraspinatus tendon or over the sub-acromial bursa, a lesion of the shoulder articulation may be ruled out. Palpation of the region of the acromioclavicular articulation will determine any injury or disease in that area.

A differential diagnosis of painful conditions involving the shoulder is always difficult. Careful palpation to determine the points of tenderness with particular reference to the insertion of the supraspinatus into the greater tuberosity and the sub-scapularis into the lesser tuberosity are very significant. Tenderness in the bicipital groove may indicate lesions of the biceps tendon. When localized tenderness is present elsewhere, the exact area may be determined by rotating the humerus beneath the palpating finger.

All chronic shoulder lesions have many sim-

ilar physical findings. There is marked limitation of motion when the arm is in abduction or rotated with less decrease in the motion in forward or posterior flexion. Only in cases with calcification or partial rupture of one of the short rotator muscles is there likely to be a definite area of tenderness. The exact location of the muscle insertion with reference to the bicipital groove is all important in determining the muscle or tendon involved.

The facet syndrome or other lesions encroaching on the intervertebral foramen by posterior pressure from the capsule of the joint will result in flexion of the cervical spine at the cervico-thoracic angle, and the head will be thrust forward. At times it will be deviated laterally. The muscles of the neck are spastic and movements are restricted in some or in all directions. Extension of the spine to correct the deformity usually increases the pain by allowing the swollen joint to bulge into the intervertebral foramina. Deep palpation will reveal tenderness over the articular facets which are involved.

Herniation of the nucleus pulposus will result in compression of the nerve on its anterior surface. The patient's head will usually be held in a neutral position and motion will be unlimited except in hyperextension and flexion to the involved side. This maneuver will result in further pinching of the nerve and will produce a radiation of the pain over the involved dermatome.

It should not be forgotten that any of the lesions, discussed above, may produce spasm of the anterior scalene muscle, therefore, this complication should always be remembered. It is not uncommon, in fact, to have the clinical features of a ruptured cervical disc overshadowed by a superimposed scalenus syndrome. The most important differential feature is that the nerve pain and paresthesias from scalenus anticus compression are referred to the dermatome of the first thoracic and eighth cervical nerve roots (the ulnar distribution); whereas, the pain and paresthesias of cervical disc lesions are usually in the distribution of the sixth and seventh cervical nerve roots (radial and median distribution).

In addition, if motion is free in the cervical area and pain is produced only on hyperextension of the neck and deviation to the involved side, it is indicative of a cervical disc syndrome. Limitation of motion of the cervical spine in one or more directions with a deformity consisting of the head thrust forward and deviated to the side

opposite of the lesion and with pain over one or more of the articular facets a facet syndrome is more likely to exist. Any of the nerve roots may be involved.

Any condition which will produce irritation of one of the cervical nerve roots or spasm of the anterior scalene muscle, may be associated with a complaint of severe recurrent numbness and tingling in the hand or forearm, and yet sensory deficit cannot be demonstrated by the usual clinical tests. If the compression of the nerve has been present for a long time, and if severe sensory changes are present, they are usually demonstrated with ease.

Objective motor weakness may be difficult to demonstrate even though the patient complains that the involved extremity is weaker than normal. If a muscle deficit can be demonstrated it may have great diagnostic as well as localizing significance. The biceps brachialis muscle is supplied chiefly through the fifth and sixth cervical nerve roots, whereas, the triceps function frequently occurs with lesions of the sixth cervical nerve root and a weak triceps and a normal biceps indicates a lesion of the seventh cervical nerve root. Lesions at the fifth cervical disc characteristically produce diminution or absence of the biceps reflex, whereas lesions of the sixth cervical disc are associated with diminution or absence of the triceps reflex. The other tendon reflexes of the upper extremity are usually not involved by the lesions at these levels.

A careful examination of the scapular region with reference to tender areas should be done. When tender points are found, the exact location should be carefully mapped. Firm pressure over these areas may cause radiation of pain into the extremity. If such a trigger point is found, the differential diagnosis may be further pursued by determining the effect of local procaine injection. It has been recognized that blind injection in the hope of infiltrating a trigger point is usually ineffective. If the accurate placing of a few drops of novocaine results in relief of the tender area and the referred pain on pressure, the differential diagnosis should go further to determine whether or not this is secondary to some other condition, or if the trigger point is the primary cause of the condition.

X-ray examinations of shoulder lesions are usually not helpful except where calcification is present. When calcification is suspected the examination should include a roentgenogram

with the humerus in neutral position, in internal rotation and one in external rotation so that any calcified areas will be thrown into profile.

Roentgen examination of the cervical spine may or may not be helpful. The presence of cervical ribs or of long transverse processes of the seventh cervical vertebrae should be determined. The presence or absence of the normal lordosis of the cervical spine is important in a differential diagnosis. At times there will be a reversal of the curve, which usually indicates a facet syndrome causing irritation of the nerve root by posterior pressure. When there is sharp angulation of the neck with the head in an essentially normal position, a cervical disc protrusion may be present. However, under such circumstances there is usually a compensatory curve above and below which maintains an essentially normal posture of the neck. Oblique x-ray views of the cervical spine may show a protrusion of bony spurs into the intervertebral foramina. The request for the roentgenogram should be based on the type of disturbance suspected so that it will be visualized if it is present.

TREATMENT

Treatment will vary and depends upon the disease which is present. Halter traction is indicated in the facet syndrome and mild symptoms of herniated disc of the cervical region. The etiological factor should be eliminated insofar as is possible. Persistent or severe symptoms will require surgery.

A rupture of the supraspinatus tendon should be sutured early. Calcifications of the supraspinatus or other tendons beneath the subacromial bursa should be aspirated with a large needle, using a diluted solution of novocaine to wash out the calcium. Small areas may be "needled" to break up the deposit and to increase the local reaction. Deep x-ray therapy is helpful in the more chronic types. Appropriate abduction exercises are always in order in any type of painful shoulder, and the "sling" position is to be avoided. Spasm of the anterior scalene muscle may be relieved by repeated novocaine injections. You should treat the specific primary condition and preserve the shoulder motion by appropriate exercises.

BIBLIOGRAPHY

1. Bishop, W. A., Jr., M. D. Calcification of the Supraspinatus Tendon—Cause, Pathologic Picture and Relation to the Scalenus Anticus Syndrome. *Arch. Surg.* 39:231-246, 1939.
2. Codman, E. A., M. D. Stiff and Painful Shoulders: Anatomy of Subdeltoid or Subacromial Bursa and Its Clinical Im-

portance; Subdeltoid Bursitis. *Bostonian Medical and Surgical Journal*, 154: 613-620, 1906.

3. Codman, E. A., M. D. The Shoulder, Rupture of the Supraspinatus Tendon and Other Lesions In or About the Subacromial Bursa. Thomas Todd Co., Boston, 1934.

4. Freiberg, Joseph A., M. D. The Scalenus Anterior Muscle in Relation to Shoulder and Arm Pain. *The Jr. Bone and Joint Surg.*, 20:860-869, 1938.

5. Nachlas, I. William, M. D. Brachialgia, a Manifestation of Various Lesions. *Jr. Bone and Joint Surg.*, 26:177-184, 1944.

6. Spurling, R. G. and Scoville, W. B. Lateral Rupture of the

Cervical Intervertebral Discs—A Common Cause of Shoulder and Arm Pain. *Surg. Gynec. & Obst.* 78:350-358, 1944.

7. Steindler, Arthur, M. D. and Luck, V. J., M. D. Differential Diagnosis of Pain Low in the Back. *J.A.M.A.*, 110:106-113, Jan. 8, 1938.

8. Travell, Janet, M. D., et al. Pain and Disability of the Shoulder and Arm—Treatment by Intramuscular Infiltration with Procaine Hydrochloride. *J.A.M.A.*, 120:417-422, Oct. 10, 1942.

9. Young, H. Herman, M. D. Orthopedic Aspects of Pain in the Shoulder and Arm. *The Surgical Clinics of North America*, 26:834-840, August, 1946.

RIEDEL'S STRUMA

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RIEDEL described this condition in 1896; yet, when one wishes to review the literature on the subject, one finds very little information contained in the most important literature of the day. But one encounters cases of Riedel's Struma in his practice, and unless one is alert, the diagnosis is not made. I have encountered a number of cases in my practice and may have failed to reach a correct diagnosis in some other cases. Both sexes are about equally affected, although some authors seem to think there is some predisposition to this condition in the female. Riedel's Struma is usually found in the young to middle aged adults, although older individuals may be affected by the disease.

The etiology of Riedel's Struma is still unknown. Many theories as to the cause have been advanced. It may be the result of bacterial infection or a virus, since three of the cases that have come under my care had had recent attacks of influenza. Riedel's Struma may arise from a distant focus or from a focus in the neighboring structure of the neck. Cultures of the specimen characteristically are negative and show no bacterial invasion. The late Joseph L. DeCourcy believed that the disease is the result of a previous peri-thyroiditis which causes a partial constriction of the vessels entering the thyroid gland.

In general, the history is negative as to previous involvement or dysfunction of the thyroid gland. As a rule the disease involves first one lobe and then the other or in the case where both lobes are affected, one lobe may enlarge a little more than the other. In about half of the patients the process is unilateral. Dyspnea and dysphagia are usually the first symptoms complained of, and tenderness is a fairly constant feature. Pain is usually absent in the early

stages of the disease, but as time advances, pressure symptoms become more noticeable and pain is more constant and severe. Pain may be present in the region of the thyroid gland, in the neck or shoulders and radiating into the ear or back of the head. One or both lobes of the thyroid gland usually present a symmetrical enlargement, smooth and with a characteristic stony hardness, or as Riedel originally described it, "iron hardness." The shape of the thyroid gland is retained. The relation of the lateral lobes to the isthmus remains normal, and the isthmus although enlarged, and inordinately firm, remains a distinct isthmus crossing the front of the trachea. In many cases, fixation of the gland to the surrounding tissue takes place and the adherent tissue causes a constriction. The feeling of pressure is usually followed or accompanied by hoarseness, stridor, or even aphasia, due to involvement of the recurrent laryngeal nerve. Pressure symptoms are apt to be progressive often to such an extent that asphyxia seems imminent. There are marked secondary nervous symptoms because of the anxiety state created by marked dyspnea and choking sensations. There is usually a normal or mildly elevated basal metabolic rate. The regional lymph nodes are but seldom enlarged.

Pathologic changes which occur result in a gradual conversion of the thyroid gland into an extremely hard, dense, hyalinized, avascular fibrous tissue, except when the fibrous tissue maintains the patulousness of a large vessel. The arterioles show a thickening of the intima and media and are surrounded by a cuff of fibrous tissue. There is usually complete absence of acinar epithelium. Scattered lymphocytes are most frequent, but sections of the diseased thyroid appear of a greyish or white color or even a faint pink. The feel of the extirpated gland is that of a peculiar hard resiliency. Again,

DeCourey believed that the fibrous growth begins outside of the gland proper rather than inside of the thyroid itself and extends to the surrounding structure. In the discussion of the pathology of Riedel's Struma, Hertzler stated that the cut surface of the hard, fixed mass is bloodless, the smaller vessels being compressed by the exudate. Harry has noted the variations in the condition of the blood vessels in the different specimens of Riedel's Struma. He observed the pronounced thickening as a rule of the arterioles and small arteries but he also observed in some cases these vessels appear to be normal, though the number of capillaries may be reduced. Again, Hertzler, in discussing Riedel's Struma stated, "Whatever the disease may be, it is neither a true inflammation nor a true tumor." He believed that it was a vascular disease rather than a glandular disease.

Differential Diagnosis: Cancer of the thyroid usually occurs in the presence of an already existing goiter. Cancer is usually nodular and conspicuous in one lobe. Fixation of the tissue in the neck and paralysis of the recurrent laryngeal nerves does not occur in the early stages of cancer of the thyroid. The classical symptoms of cancer of the thyroid, such as nodules in the gland, invasion of the cervical lymph nodes, hoarseness, stridor and choking are late symptoms. Cancer usually occurs between the ages of 40 and 60 with wide variations. In the questionable cases a biopsy and microscopical examination is necessary for a definite diagnosis.

In acute suppurative thyroiditis there is marked tenderness and severe pain in the gland, accompanied by high temperature, all of which subside when the pus is liberated.

Hashimoto's disease, or chronic lymphoid thyroiditis, is characterized by a diffuse and extensive lymphatic infiltration, always bilateral, usually occurring in women over forty years of age.

The treatment consists in the elimination of all possible focal infection primarily and there-

after aims at the relief of the symptoms. Surgical treatment is carried out for one reason: the relief of the mechanical effects of the diseased gland. Operative procedures should be as conservative as possible, as the disease is not neoplastic. The results of carefully executed surgery in general are good. The exception is the late cases where the results are often very poor. The diseased gland cuts with great difficulty, and resection is often physically impossible except by continual sharp dissection with loss of identity of adjacent structures. Therefore, it is extremely difficult to avoid injury to the trachea, the recurrent laryngeal nerve, and the parathyroid glands. Even partial removal of the diseased gland is usually very difficult, and complete resection is usually mechanically impossible. Therefore, to endanger the patient's well being and even life by a total resection of the gland is not justified. Tracheitis occurs postoperatively quite frequently and lasts from five to seven days. Parathyroid tetany and recurrent laryngeal nerve paralysis are far too common. Hypothyroidism of varying degrees may result and is dependent both on the severity of the disease process and the amount of the thyroid gland left intact by the operator. Hypothyroidism follows operation for Riedel's Struma in from twenty to forty per cent of the cases. Roentgen therapy has been used in the treatment of Riedel's Struma, but with no beneficial results.

CONCLUSIONS

Riedel's Struma is most common in the communities where it is looked for. Authors of medical text books should give this disease a more important place in literature. The diagnosis of Riedel's Struma is frequently overlooked because of a lack of a proper knowledge of the disease. It is frequently mistaken for cancer, and a radical resection of the thyroid gland is often attempted. Only conservative operative procedures aimed at the relief of mechanical effects of the diseased gland are to be undertaken.

THE IMPORTANCE OF THE RH FACTOR IN SURGERY AND OBSTETRICS

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IN 1939 and 1940 Levine, Weiner and Landsteiner working on the problem of reaction

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in intra blood group transfusion, discovered a new agglutinin, a subgroup of human blood, which they called the Rh. Factor. This factor

was found to be universally present in the blood of the Rhesus monkey and from which its name was taken. It is present in 85% of the blood of the white race, in 95.5% of the blood of the negro, 99% of the American Indian, 99.3% of the Chinese and 98% of the Japanese. The Rh. Factor is an inherited Mendelian dominant character and is carried by the red blood cell. If injected into the blood stream of one without it, it acts as an antigen causing the formation in the blood serum of antibodies or agglutinins and a reaction known as isoimmunization. Those with the Rh. Factor in their blood are known as Rh. positive and those without it as Rh. negative. Patients with Rh. negative blood receiving blood transfusion from Rh. positive donors will, after several transfusions, develop sufficient isoimmunization with agglutination and hemolysis of their red cells to cause serious and at times fatal reaction. An Rh. negative woman mated to an Rh. positive man in event of pregnancy, may develop sufficient anti Rh. factor in her blood to seriously affect her fetus. The type of anemia caused by the destruction of its red cells is known as Erythroblastosis Fetalis.

With the continued study and investigation of the Rh. Factor our information and knowledge have developed. Isoimmunization does not develop in the blood of the Rh. negative mother with the positive father in the first pregnancy, unless she has been previously immunized by a transfusion of blood from a positive Rh. donor. Also the blood of an Rh. negative individual is not usually affected by the first transfusion from an Rh. positive donor. Levine reports that out of a group of 350 erythroblastotic infants, 90% had Rh. negative mothers. The remaining 10% were caused by immunization from other blood factors, principally Hr. factor, genetically related to the Rh. factor, and to the blood factors A and B. In another group of infants with erythroblastosis fetalis with Rh. negative mothers, 100% were Rh. positive, like the father.

If both genes of the Rh. chromosome in a married man are Rh. dominant, the husband is homozygous. If his wife is Rh. negative, all their children will be Rh. positive like himself. When, however, he has one Rh. dominant and one Rh. recessive gene, he is heterozygous; and if married to an Rh. negative woman, one half of their children will be Rh. positive and one half will be Rh. negative. Very small amounts of Rh. positive blood, if frequently repeated, will im-

mune the blood of a negative individual. For erythroblastosis to occur in the fetus of an Rh. negative mother, some Rh. positive red cells from her fetus must enter her circulation to immunize her. Just how and when this occurs has not been proven. These blood cells must penetrate the placental barrier, probably through a break in the continuity of the cells of the chorionic villi. This could easily occur during the strain and stress of labor and delivery, but we have reason to believe that it occurs much earlier. The mother's bloodserum normally enters the circulation of the Rh. positive fetus, and if laden with anti Rh. factor, red cell destruction occurs.

The anti Rh. agglutinins are complex. Much laboratory time and effort has been devoted to the elucidation of this problem. At the present time three antibodies have been isolated and classified from their laboratory reaction. They are known as

The saline agglutinin

The serum albumin or anti-human globulin (cryptagglutinoids) agglutinin, and

Blocking antibodies,

The Rh. Factor is also complex. The one most important and most used in laboratory work is Rho or D. There is a single negative factor.

The problem of Rh. factor is largely one of the Surgeon, the Obstetrician, the Pediatrician, the Hematologist and the Laboratory. It is necessary to know whether the surgical patient is Rh. negative before operation, whether the hospital blood bank is supplied with sufficient type O Rh. negative blood, or has access to a supply, or whether the hospital laboratory has technicians carefully trained in the examination for Rh. factor and in making anti Rh. tests.

The Rh. factor is of more importance to the Obstetrician. He has the welfare of the mother as well as the baby to consider. Most intelligent women are acquainted with the importance of the Rh. Factor. They are deeply concerned that their coming child be alive and well. If they are in the Rh. negative class, it is often necessary to dispel their fears and it is likewise necessary to sit down with them and carefully explain their problem and just what can be done to overcome it. All pregnant women should be examined early for Rh. blood factor. A careful history should be taken of previous blood transfusion. If she is Rh. negative, the husband's blood is also examined. Should he be positive, an effort is made to determine whether he is homozygous

or heterozygous. If the woman has more than one child this may be done by examining the blood of her children. Should she have one positive and one negative child her husband is heterozygous, and she can be assured that only the second positive child is apt to be affected and that a normal Rh. negative child will follow each positive child. When the child test is unavailable, there is the possibility of determining the genetic type of the Rh. positive husband by means of anti Hr. serum. This serum up to the present time has been difficult to obtain in sufficient quantity and potency to make the test practical in many cases. If the Rh. negative woman's husband is homozygous, then she should be told how to space her children with the hope of diluting the isoimmunizing substances in her blood. Isoimmunization reaches its highest point of intensity during the last two or three months of gestation. It has *not* been proven that the Rh. factor enters into the problem of early abortion.

From the seventh to the ninth gestational month, the blood of all Rh. negative women should be examined for anti Rh. factor. Since the recognition of the blocking antibodies, the titer of the anti Rh. factor at this time is fairly reliable, and the obstetrician can make a prognosis of the condition of the fetus. If the titer is high and the child is viable, induction of labor or Cesarean Section should be considered. In this way the severity of the erythroblastosis fetalis may be lessened.

We must face the problem of the Rh. negative mother with the high anti Rh. titer who is strongly immunized. Fortunately this condition is not common. She may have had several severely affected babies and stillbirths. The spacing of pregnancies has already been mentioned. A word of caution should be expressed about the blood transfusion of females from infancy on, without the benefit of Rh. factor examination. For a time previous to the production of Vitamin K, it was customary for physicians to administer intramuscularly small quantities of blood when cerebral hemorrhage was suspected in the new born babe. Other conditions required blood in infancy and childhood at a time when Rh. factor was unknown. All such administration of Rh. positive blood will immunize the Rh. negative female, an immunization which she will carry during her life time. The history of these cases should be obtained if possible. Erythroblastosis

fetalis in the first baby may be due to immunization from this cause or from blood factors A and B. These women still have hope for a normal child through artificial insemination with an Rh. negative donor. Some will prefer adopting their babies.

Women who are Rh. negative and have given birth to a positive child should not nurse their infant. The anti Rh. factor is carried by the colostrum and further destruction of the infant's red cells would be most unfortunate.

The baby suspected of Erythroblastosis fetalis should be turned over immediately to the pediatrician. The pediatrician is doing excellent service in diagnosing the mild cases and transfusing the more serious ones with Type O Rh. negative blood. The Rh. negative donor must never be the *mother*, or one whose blood has been immunized. At the present time substitution transfusion is meeting with much success. By this method, known as the Diamond method, 20 to 50 cc. of infant blood is removed from the longitudinal sinus or the radial artery and an equal amount of Type O Rh. negative blood is transfused through a superficial vein of the arm. This is continued alternately until 500 cc. of Rh. positive blood are removed from the infant and 575 cc. of Rh. negative blood are restored. This changes temporarily the Rh. positive infant blood to Rh. negative and removes much of the destructive anti Rh. factor. The suspected infant should be under careful observation from the moment of its birth. The progress of the anemia is insidious and rapid. With indication of anemia or jaundice regular blood counts should be made and transfusion should be started early.

The prevention and care of Rh. factor reactions is impossible without the aid of a well equipped laboratory. There should be technicians well trained in tests for both Rh. and anti Rh. factor. There should be a liberal supply of standard anti Rh. serum as well as other less anti Rh. sera. Interested members of the hospital staff may be of great help in securing highly immunized women who may become donors of anti Rh. serum of a satisfactory titer, for test purposes.

There is much about the Rh. factor too technical and too theoretical for the average physician to concern himself about. It has, however, clarified many of the uncertainties regarding reaction in blood transfusion and the cause of erythroblastosis fetalis. It has brought to our

attention certain indisputable facts that make it most important that the less fortunate 15% of Rh. negative members of the human family be given the necessary care and attention that their lives and the lives of their offspring may not be unnecessarily endangered. Levine states in one of his monographs: "In recommending a public health program, it is pertinent to mention that the morbid effects incident to isoimmunization, i.e., erythroblastosis fetalis and intra group transfusion accidents, are observed far more frequently than those resulting from syphilis. Obviously the element of contagion is not present in the case of isoimmunization."

Fortunately statistics of intra group transfusion accidents and erythroblastosis fetalis are

brighter than the cold reasoning of the laboratory investigator might have us believe. Many Rh. negative recipients of Rh. positive blood do not have serious reactions. Likewise many Rh. negative women seem to resist the antigenic action of their Rh. positive fetus. Then there is the heterozygous father, the one or two child families, the sterile marriages, all of which lessen the cases of erythroblastosis fetalis and the problem of Rh. factor. It is necessary to combat the hysteria of many young mothers caused by the popular magazine articles of today. These women should be carefully advised. It is for us, however, to be on the alert and ready to act promptly in the care of the Rh. negative surgical and obstetrical patient.

Arizona Medical Problems

CONSULTATION AND CASE ANALYSIS

ARIZONA MEDICINE again presents an unsolved and difficult case from the practice of Arizona physicians, with the Case Analysis and comments of a specially-chosen and nationally-known Consultant.

Any physician who has an undiagnosed case which has defied other methods of solution may send it for consideration. The case should be completely worked up, but an editor will help compose the report. Whenever the need for an answer is urgent, the Consultant's reply will be sent direct to the submitting physician, before publication.

Please send communications and data to Dr. W. H. Oatway, Jr., 123 S. Stone Avenue, Tucson, Arizona, or care of The Editor, Arizona Medicine.

The CONSULTANT for this case is Dr. Claude Ellis Forkner, internist and hematologist of New York City, and Associate Professor of Clinical Medicine at Cornell.

Dr. Forkner was a native of Montana, and a graduate of the University of California and of Harvard Medical School. He was a research assistant in the Thorndike Laboratory at Harvard, an Associate professor for six years at Peiping Union Medical College, Peiping, China, and he has been on the staff of The New York Hospital and the faculty of Cornell since 1937. During World War II he was a medical coordinator in China, consultant to the Surgeon General of the United States Army, and was decorated by the Chinese government with the medal of honored merit.

Dr. Forkner is the author of a text "Leukemia and Allied Disorders," and of numerous articles

on blood dyscrasias. He demonstrated the value of arsenic in the leukemias in 1931. He is a diplomate of the American Board of Internal Medicine and a member of the American College of Physicians, the American Society for Clinical Investigation, the Society for Experimental Biology and Medicine, The New York Academy of Medicine, The Harvey Society, the International Society of Hematology, the Association of American Physicians, as well as other basic groups.

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CASE NUMBER XIII

The patient is a **white female Englishwoman, 66 years of age.** She was sent to an internist for an estimate of her condition by the pediatrician of a family for whom she worked as a governess.

The **first impressions** were indistinct because of the patient's vagueness, and because of the effects of a previous medication. She had had pain for many months in the upper spine and occiput, plus a gnawing pain in the upper abdomen and sternal areas. "White tablets" had relieved these pains, and she then had several teeth extracted, with a resultant nervous shock and insomnia. A physician had prescribed "**a red tonic,**" and as a result, she was able to sleep, but her balance was upset, she stumbled, and her mind was "fuzzy." She was somnolent, incoherent, and unable to concentrate when first seen. There were **no other signs** of importance.

The "red tonic" was found to be a bromide, her condition was **brominism**, a complete examination was deferred, use of the drug was discontinued, and **she improved markedly** in the next five days.

It was then found that her chief complaints

included mild occasional pains in the interscapular area, the occipital area, the left side of the neck, and the left upper quadrant of the abdomen. She had lost 20 pounds in the previous four months though she still weighed 134. Her appetite has been only fair for months. She has taken epsom salts for a mild constipation once a week for years, and for a year, several years ago, she had used a diet for possible gall-bladder disease.

History by systems was otherwise negative. Her **past medical history** was nearly negative, with a pneumonia 30 years ago, and scarlet fever as a child. She is a spinster; ceased menstruating at 52 without symptoms; and her only vice is moderate tea-drinking. The **family history** was negative.

Physical examination showed her to be tall but well-nourished; her skin was flaccid and dry; the fundi showed moderate sclerosis of the arteries; the B. P. was 122/80; fluoroscopy showed the heart and lungs to be normal except for a prominent aortic arch; the heart sounds were normal except for an accentuated mitral first. She was edentulous, with dental plates. The tongue had a smooth margin. The right submaxillary gland was slightly swollen. There was moderate varicosity of the veins of the lower legs.

The impression was that she had osteo-arthritis of the spine, mild generalized arterio-sclerosis, chronic spastic colon, and a possible secondary anemia. She was given small doses of phenobarbital, and observed again in a week. The brominism had then completely subsided, and **laboratory tests** were ordered. Her R.B.C. count was 3,590,000 and Hb. was 11.7 gm (85%). The fasting gastric contents showed **no acidity** before or after histamine injection. The diagnosis of achlorhydric hypochromic anemia was added to the impressions.

Treatment of the anemia was not satisfactory, since she developed indigestion from each of several forms of iron, even in combination with liver extract in capsules. A further complication of her therapy was the need, because of travel into Mexico, for typhoid and small pox immunizations; she continued to have cervico-occipital pain, asthenia, malaise, giddiness, and anorexia. There was no relief obtained by the use of sedatives, vitamin B preparations, a trial of dilute hydrochloric acid, and even a test-injection of theelin. The R.B.C. and Hb. were improved about 5% in a month. A barium meal showed the upper intestinal tract to be normal. A complete physical examination and fluoroscopy of the chest showed only normal findings.

The patient was allowed to go to Mexico with some misgivings; only a combination of aspirin and nembutal was given her to use for discomfort. She returned six months later in good shape, with less spinal pain, a mild occasional pain under the left costal margin, and a burning of her eyelids. The anorexia and insomnia (and a good deal of her vagueness) were gone. She had

had "dysentery" three times, and had lost 10 pounds.

Examination showed no new abnormalities. The tongue was the same. A test of the limbs with a tuning-fork gave a normal response. A blood count was ordered, and **by chance a W.B.C. was done**. The R.B.C. numbered 3,680,000; the Hb. was 9.6 gm. (70%); **the W.B.C. count was 50,000, with 15% neutrophils, 4% eosinophils, 3% monocytes, and 78% lymphocytes**. The lymphocytes were described as being "rather young, with a loose nucleus;" many proplasmacytes were present; and the picture "suggested a transitional stage of leukemia."

In order to be sure of the constancy of the blood picture, two more counts were done in the next three weeks; the red blood elements were the same, and the white blood count was similar,—74,000 and 76,000 total cells, 93 and 94% lymphocytes, and 1 to 5% neutrophils. There were no more than 4% "prolymphocytes," and the bulk of the cells were small, with dark "caked" nuclei.

A **physical examination** was repeated, with the new knowledge in mind. There were no remarkable findings. The spleen was not palpable. No definite hilar masses could be seen by fluoroscopy. Only the anterior cervical and axillary nodes could even be palpated, and they could not be called enlarged.

Several questions arose at this point, and they have been listed with the answers given by Dr. Forkner.

* * *

CONSULTATION AND CASE ANALYSIS—

1. *Is the diagnosis of lymphatic leukemia justified?*

I believe *the diagnosis of lymphogenous or lymphocytic leukemia is justified*. An examination of the bone marrow and a microscopic examination of one of the palpable nodes may add significant data, but if negative would not invalidate the strong suspicion of leukemia. If such studies supported the diagnosis of leukemia, the management of the case would not be altered.

2. *Is it a common occurrence in the absence of physical signs?*

The presence of lymphocytic leukemia without general enlargement of the lymph nodes and of the spleen is most unusual, but it does occur. It would be expected that as the disease progresses these structures will become enlarged. The mild anemia may be accounted for as a manifestation of leukemia.

3. *Are any of the symptoms significant in the presence of the anemia, arthritis, and arterio-sclerosis?*

Her symptoms of tiring easily may be related to the mild anemia, but they are easily explained on the basis of her age, of her work, and of her mild hypertension. Arthritis simulating acute rheumatic fever is common in young persons afflicted with acute or subacute lymphocytic

leukemia, but is not a manifestation of chronic leukemia. It is believed that this patient has ample evidence of widespread osteo-arthritis and that this is entirely independent of her hematologic state.

4. *Is there any chance that an abnormally low incidence of indigenous leukemias exists in the southwest, or elsewhere? (This point has been raised locally in the past, but would seem difficult of proof.)*

The consultant is not aware of any geographic or racial peculiarity with regard to leukemia. It occurs in all races and in all geographic regions. There is, however, relatively little data available with regard to these factors. Further careful studies would be necessary before one could conclude with certainty whether or not there is an abnormally low or high incidence of indigenous leukemia in any locality.

5. *What is the Consultant's opinion as to the basic etiology of leukemias?*

The etiology of leukemia remains obscure. It is known that in mice leukemia may be hereditary. By carefully controlled genetic studies, it has been shown that a strain of animals can be developed which is highly susceptible to transmissible and spontaneous occurrence of leukemia.

It is common to have leukemia regarded as a malignant neoplasm. There is considerable evidence to support this hypothesis, but such concepts have not materially advanced knowledge because we do not know the etiology of malignant neoplasms. To say that leukemia is a form of cancer is just another way of saying that we do not know its cause. It would seem to me to hinder rather than to further the study of the disease to call it a cancer. My own working hypothesis is that leukemia is a metabolic disorder; that is, it is due to a failure of the body to elaborate some unknown substance or that some such substance is manufactured in abnormal amounts. Indeed cancer itself may have such metabolic disturbances as its etiology. Undoubtedly a number of factors may predispose an individual to leukemia. Some of these factors probably are extrinsic whereas others may be hereditary or intrinsic.

6. *How should this case be treated—by arsenicals or radiation, or is there a newer method of proved worth?*

This patient, in the consultant's opinion, should receive no specific treatment at present, even if one were absolutely certain of the diagnosis of chronic lymphocytic leukemia. Treatment in leukemia is not curative; it is palliative. Since there are no symptoms of significance attributed to leukemia in this patient, it would seem justifiable to watch her carefully, asking her to report any new symptoms and requesting that she be examined about every one to three months for the detection of any adverse developments. If symptoms develop which warrant treatment, then therapy with medium-voltage

x-rays offers the best opportunity of producing a remission.

In general, one has a choice of treating the whole body by the so-called "spray" technique, or of treating selected areas of lymph nodes with so-called "spot" irradiation. My experience would lead me to try at first small doses of "spray" irradiation, giving about 35 roentgen units to the anterior torso followed in two or three days by 35 units to the posterior torso and continuing to observe and treat until each area had received about 105 units. Some patients will require more treatment and a few will require less. The amount is to be judged by the response of the whole patient with special reference to her blood count.

Other methods of treatment with radioactive phosphorus, urethane, nitrogen mustards, Fowler's solution, and so forth, are of less value in this type of leukemia than irradiation with x-rays.

7. *What is the probable prognosis in this case?*

The average duration of life after the onset of symptoms in patients with chronic lymphocytic leukemia is about 3.45 years. This duration is not materially influenced by treatment with any agent except in selected cases. The disease is apt to progress more slowly in older than in young persons. Rarely patients live for 10 or 15 years with chronic leukemia. Some patients seem to remain relatively stationary for many years. It is believed that unwarranted interference by means of any treatment may upset the established control mechanisms in such patients who are remaining asymptomatic.

8. *Can you suggest a treatment for the anemia which this patient might tolerate, or will it improve after therapy of the leukemia?*

Anemia which is brought about by leukemia is not influenced by any measures which do not control the leukemic process. In this patient the anemia is of low grade and may in part be associated with her hypertension or other factors. She has taken liver and iron preparations by mouth. They might have been responsible for the betterment in her hemoglobin and red blood cell values. The anemia in her instance is not important and probably is not due to her disturbed blood picture.

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TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By GUILLERMO OSLER, M. D.

It is almost impossible to be completely up-to-date on the ANTIBIOTIC DRUGS. Dr. Perrin Long of Johns Hopkins, who started the use of sulfa drugs in the United States in 1936, has given new information on several mold derivatives at an E E N T convention in Los Angeles. . . . CHLOROMYCETIN (which this column described in November) may go on sale in February. AUREOMYCIN (called "Duomycin" by the Lederle Laboratories) was released for use on December 11th. Two others, POLYMYXIN AND CIRCULIS, are still in early stages of investigation. . . . Dr. Long considers AUREOMYCIN in a class with penicillin and, except that it came later, may be even more wonderful. It is produced by a strain of streptomycetes. It is rarely toxic, and is effective by mouth. It has bacteriostatic and bacteriocidal activity against numerous gram negative and positive BACTERIA, including *E. typhosa* and several previously unresponsive infections of the eye and urinary tracts. It may be effective against strains which are resistant to penicillin and streptomycin, but seems to have little tendency to produce resistance. It promises to be effective against VIRUS diseases, including primary atypical (virus) pneumonia, psittacosis, lymphogranuloma venereum, and granuloma inguinale. It has been found active against RICKETTSIAL diseases, including murine, scrub, and epidemic typhus, Q fever, Rocky mountain spotted fever, and rickettsialpox. And finally, aureomycin has been found by Heilman of Mayo's to have effect on syphilis in humans and on relapsing fever and leptospirosis (Weil's Disease) in animals. . . . These are early results, and clinical work will show the best usage of each drug.

IDEA-OF-THE-MONTH—A folder which could be sold for about 25 cents, composed of post-card sized sections, containing colored pictures of a dozen poisonous and non-poisonous "small desert animals." . . . The picture of a scorpion, rattlesnake, tarantula, etc., could be shown on one side of each section, with data about its size, habitat, habits, hazard, and treatment of the bite or sting on the reverse side. . . . A pharmacy could collaborate with a zoologist to produce it. It would benefit the public and physicians alike.

THERAPY FOR APOPLEXY has never been active, nor especially hopeful. Drs. de Takats and Gilbert of Chicago have recently emphasized the value of stellate ganglion and cervical sympathetic nerve-block. It gives hope for improve-

ment in many cases. . . . Two limitations are essential,—cases of hemorrhage are not suitable—the indications are embolism and thrombosis; and the procedure requires an expert with experience. . . . A successful injection is signalled in a few minutes by a unilateral Horner's syndrome, and sometimes by a revival of the patient.

The \$25.00 assessment by the A.M.A. boosts the county-state-national fee fairly high. There is no doubt that the job needs to be done, and it must be paid for. If it is done well there should be no complaint, and it will solve the perplexing question as to what other "societies" or "committees" one should join for that purpose.

A topic which is concerned with Arizona, with chemistry, and (if you try to do without it) with medicine is WATER. . . . Specifically, attempts to obtain usable water from sea-water are quietly proceeding at the present moment. Not just enough water to fill a canteen, but huge quantities of it. It would give security to the southwest and California, the population of which increases, water levels decrease, and rainfall will never catch up. . . . California has offered a prize of \$20,000 to the person who can produce drinkable water from the sea at the cost of \$20 per acre foot. There have been hundreds of answers, many of them good, but the lowest costs are \$60 to \$80 (pumped or imported water is \$15 to \$19 per acre foot, and it is limited in quantity). . . . One of our greatest war secrets, which made possible the occupation of Pacific islands, was the "thermal compression" (TC) method of extraction—but it is costly. The reclaimed minerals would help reduce costs, and form large new industries. Atomic energy offers the best hope now, but physical and chemical methods are said to be promising, and perhaps the results may come soon.

The treatment of INFLAMMATION AND OCCLUSION OF THE VEINS has leaped ahead a century in the past few years. In addition to surgery of the veins, and ligation to prevent embolism, three classes of drugs have found a solid place in therapy,—1. antispasmodics, such as papaverine, etc.; 2. anticoagulants, such as heparin and dicumarol; 3. antibiotics, such as penicillin, streptomycin, etc.

Progress note,—The ARIZONA MEDICINE of September 1946 contained a report which de-

scribed THE TOXIC EFFECTS OF BERYLLIUM. It was only the third report of the chronic type of involvement which had appeared in the literature up to that time. . . . Since then the subject has received a flood of attention. Numerous papers have appeared, describing the granulomatosis or "sarcoid" which has been found after contact with beryllium in its various forms. One of the yearly Saranac Symposiums on Industrial Disease was devoted to the subject. State industrial programs have been formulated to cope with the hazard. Research has begun to determine causes. . . . The most recent story about the stuff (not confirmed in medical literature) is that cases of the sarcoid were found in townspeople exposed to a smog containing beryllium.

The use of SUN-GLASSES has recently been blasted by an ophthalmologist. His opinion that they are often of no value and sometimes a racket needs elaboration. . . . Apparently glasses may be tinted or dark, may be plain glass or lenses, and may be cheap or very expensive. . . . People wear them for a variety of reasons,—NECESSITY (some people do need them to prevent sun-strain); as a FAD (the Hollywood gesture); as a DISGUISE (or as a pretended disguise); as part of NEUROSIS. . . . An odd aspect is that they are not harmless; they have obscured vision to the point of causing accidents, especially in or by automobiles.

About a dozen years ago a device known as the Emerson LUNG IMMOBILIZING CHAMBER began to have a limited use for treatment of pulmonary tuberculosis. Dr. Alvan Barach threw his weight in its favor, and reported good results. . . . The Committee on Research and Therapy of the American Trudeau Society has made a recent investigation of its use in 23 cases in New York. . . . The Chamber, built like an "iron-lung" plus a transparent blister on one end to enclose the head, is "an ingenious device designed to insure complete rest of the lungs by abolishing respiratory movement." Alveolar gas exchange is maintained by a pump which alternately applies positive and negative pressures to the entire body. The patients are treated for 8 or 10 hours per day for several months. . . . The Committee found possible favorable effects in some cavity cases, notably those of a "tension" type, but stressed the smallness of the series, the cost of the chambers, the probability that it can now be considered only an adjunct method, and the need for a great deal more application before conclusions can be drawn.

This column presents its first report of an original therapy—the small matter of A "CURE" FOR TUBERCULOSIS! It was invented by an interesting author named Guillermo Osler in 1934. . . . The method is based on the belief that tubercle bacilli fare less well in a relatively acid

environment, and there are numerous clinical and bacteriological observations to bear it out. . . . An acid-ash producing diet, plus an acidifying drug, was devised to slightly change the acid-base balance of the body tissues. . . . No one has ever found such a routine to be effective by accident in the past 2,000 years and, sadly, the author hasn't found a way to make it work on purpose in the past 15.

Every now and then a piece of medical knowledge turns up which seems incredible, possibly even a practical joke. The BALLISTOCARDIOGRAPH, for instance. . . . When one first reads of the device, which is something like a teeter-totter, and is used to measure cardiac abnormalities and the volume of circulation, it seems certain that a physician dreamed it up while lying on a jiggly bed after eating a welsh-rarebit. Perhaps so, but the "joke" has been continued for eight or nine years by Dr. Isaac Starr and his associates in Philadelphia, and the results are now complementing and supplementing those of the stethoscope, ECG, and other diagnostic methods.

TUBERCULOSIS IN HOSPITALS FOR THE INSANE is a huge and tragic problem. Many states are taking steps to solve it in their own institutions. . . . It has repeatedly been shown that a high percentage of the hospital population (8 to 10% or more) has tuberculous disease by x-ray, and most of the rest have an infection. The incidence increases regularly with the duration of stay. It does not vary much with the type of mental disorder, except that the mentally deficient (being younger) have a far lower incidence. The hospital personnel members have a higher incidence than similar groups in the community. . . . The best method of management includes x-raying of the patients at the time of admission and recurrently later; a similar routine for employees; segregation of the tuberculous; and an active program of modern therapy. . . . The ARIZONA STATE HOSPITAL has made a start at installing a control program. Newly admitted patients are x-rayed, but re-raying is not regular. The tuberculous are segregated, but therapy could be more active. The turn-over of employees prevents a complete survey of their group by x-ray, but food-handlers are examined.

Beware of confusing two ANTI-DEPRESSANT DRUGS with unfortunately similar names. . . . The "Dexedrine" of Smith, Kline and French Laboratories is a dextro-amphetamine, is fairly new, and is quite free of toxic side-effects. "Dexephedrine," a drug in use before the war, is dextro-desoxyephedrine, but it is said to have undesirable toxicity. . . . It is almost easier to order benzedrine than to remember the difference.

Something ought to be done about certain medico-legal situation, namely COURT TESTI-

MONEY OF PSYCHIATRISTS. . . . Nothing shakes the confidence of the public more than to see medical experts at variance in court, and nothing provokes more ridicule than when they are psychiatrists. It **LOOKS** like an opinion sold for gold, and even the jury may consider itself better qualified. . . . Perhaps there is a flaw in the ar-

rangement which sees medical experts of all types appear only as "friends of the court," but some medical schools have applied such a rule to their faculty members. It expedites court procedure, prevents intra-mural squabbles, and smooths public relations. Fees are set by agreement, and paid by the defense and prosecution.

PHOENIX CLINICAL CLUB CASE

FOR DISCUSSION ON OCT. 18, 1948

From Case Records of the Massachusetts General Hospital, No. 33412.

DISCUSSANTS: Drs. Sult, Leslie Smith and Rice.

A fifty-two year-old unmarried typist was referred to the Out Patient Department because of persistent cough and nervousness.

She had apparently been in good health until four and half months before entry, when she noticed swelling and a dull pain in the legs, slight shortness of breath and a mild, persistent cough productive of white, mucoid sputum. She was admitted to another hospital, where examination revealed hypertension, an enlarged heart, slight dependent edema and enlarged hilar lymph nodes on x-ray study. She was treated with digitalis, Schemm diet, iron the chest radiation consisting of four doses of 200 r each. The symptoms cleared, but after six weeks there was still no change in the hilar lymph nodes. The patient was then told that she had Hodgkin's disease, whereupon she became disturbed and despondent. Two weeks before entry she noticed lumps on the right side of the neck. By that time she had lost considerable weight—from 160 pounds a year previously and 150 pounds four months previously to 132 pounds on admission.

The patient had had tuberculous cervical adenitis many years previously, and a hysterectomy had been performed for fibroids seven years before admission. Since then she had been subject to menopausal flashes.

Physical examination revealed a thin, nervous and anxious woman. The fundi showed only slight arteriovenous compression. In the neck there was scarring and induration under the right mandible. There were three hard supraclavicular nodules, 0.5 cm. in diameter, on the right and smaller, soft, palpable, anterior cervical lymph nodes. The lungs were normal. The heart was slightly enlarged, the border of cardiac dullness extending to the left. There was slight

pitting edema, especially of the left ankle, associated with many telangiectases. Abdominal, pelvic and neurologic examinations were negative.

The temperature was 99 F., the pulse 80, and the respirations 20. The blood pressure was 215 systolic, 115 diastolic.

Examination of the blood disclosed a red-cell count of 4,380,000, with a hemoglobin of 13.8 gm. and a white-cell count of 8,200, with 55 per cent neutrophils, 2 per cent large lymphocytes, 25 per cent small lymphocytes, 12 per cent monocytes, 4 per cent eosinophils and 2 per cent basophils. The total serum protein was 6.90 gm. per 100 cc., with 4.7 gm. of albumin and 2.2 gm. of globulin (albumin-globulin ration of 2.1). The urine was normal. A guaiac test of the stool was negative, as was a blood Hinton test.

An x-ray film of the chest showed thickened lung roots and swelling of the right paratracheal lymph nodes. The lung markings were increased, and the left leaf of the diaphragm was obscured. The spleen was not enlarged.

A biopsy of a cervical lymph node was done.

DIFFERENTIAL DIAGNOSIS:

By Massachusetts General Hospital Staff.

Dr. William McK. Jefferies: May we see the x-ray films?

Dr. Stanley M. Wyman: These films show rather symmetrical enlargement of the lymph nodes at both hili, and there is apparently one large node in the right paratracheal region. The vascular shadows in both lung fields are diffusely prominent, and in the left lower-lung field there is some mottled infiltration, partially obscuring the diaphragm and apparently lying in the lower lobe. The heart shadow is slightly increased in size, enlargement being chiefly toward the left, possibly owing to left ventricular enlargement.

Dr. Jefferies: The chief problem presented in this case is one of the differential diagnosis of the causes of enlargement of the mediastinal lymph nodes in a woman of fifty-two years. There are very few positive findings in the history, physical examination or laboratory studies that give a clue to the nature of the process.

The patient had noticed no symptoms until four and a half months before entry, at which time dyspnea, leg edema and a persistent productive cough developed. At another hospital she was found to have hypertension and an enlarged heart, as well as enlarged hilar lymph nodes, and after treatment with digitalis, iron and 800 r of x-ray therapy, the symptoms cleared without evident change in the size of the nodes, suggesting that the edema and dyspnea were due to hypertensive heart disease with failure. The cough apparently recurred, however, since we are told that it was a presenting complaint at the time of admission to this hospital. When the lymph nodes failed to respond to x-ray treatment, the patient was told that she had Hodgkin's disease, but apparently no biopsy was taken—probably because no suspicious superficial lymph nodes had presented themselves at that time. Two weeks before entry here, however, lumps appeared in the right supraclavicular area. In the meantime she had lost 28 pounds during the previous year, 18 of which had been lost in the four months prior to entry. Some of this weight loss may have resulted from digitalization. We are not given any information regarding her appetite, but we are told that she had become disturbed and despondent after hearing that she had Hodgkin's disease, so that a good part of the weight loss may have been due to emotional disturbance rather than to the underlying disease.

We are therefore obliged to explain the cause of the enlargement of the mediastinal, right supraclavicular and anterior cervical lymph nodes, associated with productive cough of four and a half months' duration and weight loss, which may or may not have been related.

Could this patient have had Hodgkin's disease? That is certainly one of the most frequent causes of enlargement of mediastinal and cervical lymph nodes. It can occur at any age. Although it is somewhat more frequent in males, 30 to 40 per cent of reported cases have been in females. The description of the supraclavicular and cervical lymph nodes is compatible, since Hodgkin's nodes are usually rather discrete and may vary greatly in texture. The blood studies are not particularly helpful. This patient had comparatively normal red-cell and white-cell counts, with a slight increase of monocytes on the differential smear. Although patients with Hodgkin's disease most frequently show a normochromic or hypochromic anemia, with a moderate leukocytosis and an increase in the polymorpho-nuclear neutrophils, normal counts are not unusual. The eosinophil count of 4 per cent is at the upper limits of normal, but it is now realized that eosinophilia is not so common in Hodgkin's disease as it was formerly thought to be.

The history of failure of the mediastinal lymph nodes to respond to x-ray treatment is somewhat against Hodgkin's disease, although some radiologists report that a dosage of over 1000 r is necessary to cause decrease in size of some mediastinal

lesions of this disease. The remarkably symmetrical enlargement of the hilar lymph nodes is also apparently unusual in Hodgkin's disease, so that it might be worth while to consider other possibilities in this case.

Other types of lymphoma should be considered, but here also the lack of radiosensitivity makes this diagnosis rather unlikely.

Could this have been tuberculosis? The history of Tuberculous cervical adenitis many years previously is suggestive, but the paucity of clinical signs and the appearance of the mediastinal nodes on x-ray examination are unusual for this disease. Tuberculous mediastinal lymph nodes would not ordinarily be so large or so symmetrically distributed as those in this case.

Bronchiogenic carcinoma can likewise probably be dismissed on the basis of the x-ray picture of symmetrically enlarged hilar lymph nodes.

There is a condition, however, in which such symmetrical enlargement of the hilar nodes, accompanied by enlargement of the paratracheal nodes, and varying degrees of peripheral lymphadenopathy are described as characteristic—that is, Boeck's sarcoidosis. It seems to occur most frequently in younger persons, the greatest incidence being in the third decade, but cases have been reported in patients up to seventy-four years old. The sex incidence is fairly equally distributed between males and females. A characteristic x-ray finding in addition to the striking enlargement of the mediastinal lymph nodes is pulmonary infiltration with linear or nodular densities. There are few or no clinical symptoms, although the occurrence of cough has been reported in a few cases. It is remarkable that even in the presence of greatly enlarged hilar and paratracheal lymph nodes, there is usually no evidence of compression of the trachea or bronchial tree. So far as I know these nodes are not radio-sensitive. The blood picture is not characteristic, but the white-cell count is usually normal or low, and an increase in monocytes, with an otherwise normal differential, has been noted in some cases. An eosinophil count of up to 35 per cent has been reported in about a third of the cases. A striking feature found in many cases of sarcoidosis but not observed in this case is an elevation of the plasma globulin; the albumin and the globulin were within normal range in the case under discussion. Characteristic areas of cyst-like rarefaction in the bones of the hands and feet have also been reported in approximately 10 per cent of cases in this country, but no mention is made of x-ray studies of the hands or feet in this case.

Dr. Wyman: X-ray films of the hands and feet were taken but showed no abnormality.

Dr. Jefferies: That indicates that sarcoidosis was also suspected. Uveoparotid fever has also been reported in over a third of the cases of this disease but was not present in this case.

The weight loss is unusual for sarcoidosis, but some loss of weight has been reported in a few

cases and as I have already mentioned, this patient may have lost weight because of emotional disturbance or digitalization.

Finally, two other conditions that may cause chest x-ray findings of this nature should be mentioned. Coccidioidomycosis, or San Joaquin Valley fever is one, but the clinical course is similar to that of influenza or primary atypical pneumonia, chest pain being a prominent feature, and the white-cell count is usually elevated. Patients with this condition usually give a history of having erythema nodosum, but in the absence of the classic skin lesions of this condition one could hardly make the diagnosis. It has been suggested by some that erythema nodosum is related to sarcoidosis, and erythema nodosum has also been reported in cases of coccidioidomycosis, so that the similarity of mediastinal x-ray findings may be more than coincidental.

Therefore, we are left with two chief possibilities: Hodgkin's disease and sarcoidosis, and on the basis of the clinical picture, the x-ray findings and the resistance to x-ray treatment, sarcoidosis seems to have been more slightly probable.

CLINICAL DIAGNOSIS:

Sarcoidosis?

Hodgkin's Disease?

DR. JEFFERIE'S DIAGNOSIS:

Sarcoidosis.

ANATOMICAL DIAGNOSIS:

Sarcoidosis.

PATHOLOGICAL DISCUSSION

Dr. Benjamin Castleman: Biopsy of the cervical lymph node showed the characteristic microscopical findings of sarcoidosis. The node was almost completely replaced by well formed groups of epithelioid cells in good tubercle formation. Langhans' giant cells were present in moderate numbers. In a few places there were small areas of necrosis, but this finding does not mean tuberculosis. We have seen foci of necrosis in well established cases of sarcoidosis. It would be interesting to have had a tuberculin test; in the majority of cases with sarcoidosis, the tuberculin test is negative.

A Physician: When the patient was seen in the Out Patient Department three months after the biopsy, no change was noted in her condition.

LESLIE B. SMITH, M. D.—

This 52-year-old spinster coughed and was nervous. Four and one-half months before the time she first reported she began to have swelling and dull pain in her legs, with slight shortness of breath, and a mild cough productive of white mucoid sputum. She was admitted to another hospital where it was found that she had a hypertension, and cardiac enlargement with some dependent edema. These symptoms cleared following proper cardiac treatment. At the time of the present study she had a hypertension of 215 systolic and 115 diastolic, hence it can not be denied that she suffered from hypertensive

cardiovascular disease with right and left ventricular failure.

During the first hospitalization "enlarged hilar lymph nodes" were found. Two weeks before this admission she first noted lumps on the side of her neck. The examination revealed three hard, small supraclavicular and small, soft, anterior cervical nodes. An x-ray showed thickening of the lung roots with swelling of the right paratracheal lymph nodes. A biopsy of a cervical lymph node was done. The diagnostic problem concerns the cause of the adenopathy. This is too large a field to cover in any detail, and is more often a cytological differentiation rather than clinical.

The only mention of this patient's temperature is that she had 99 degrees when she was admitted to the hospital. Since they have not mentioned that she did have fever, I assume that she did not. She had a mild secondary anemia. The total white count was 8,000. There was a 12% monocytosis and only 4% eosinophiles. There are many conditions which may cause monocytosis, the most common being—tuberculosis, lymphomas, infectious mononucleosis, and infectious lymphocytosis, as well as other granulomatous diseases.

It was obvious that they were thinking of reticulum cell sarcoma (Multiple myeloma) because they determined the blood proteins, which were normal. In multiple myeloma the total blood proteins are elevated due to an absolute increase in the globulin.

Adenopathy may be due to infections or neoplastic diseases. She lost weight quite rapidly, hence the process was quite severe. The infestations which should be considered are tuberculosis, coccidioidomycosis, anthrax and histoplasmosis.

She had tuberculous cervical lymphadenitis many years before, which was manifested at this time by the scarring and induration under the mandible. This suggests the possibility of tuberculosis. Cervical tuberculous lymph adenitis occurs almost exclusively in young people who are infected with the bovine type of tuberculosis, hence I will discard it as the cause in this case.

The thickening of the lung roots and the adenopathy might be due to coccidioidomycosis. We are not told about the habitus of this person and other systemic manifestations of the granulomatous stage are not mentioned. I saw a patient two years ago who had a similar picture. I made a tentative diagnosis of lymphoma, most likely Hodgkin's disease, to be corrected by the pathologist who found coccidioidal organism in the cervical lymph glands. About the same reasoning can be applied to histoplasmosis. Anthrax is to be ruled out because of the lack of history of proper exposure and absence of suppuration.

We are confronted with determining the type of neoplasm present in this patient. One of the lymphomas, at least at first glance, stands out as the most likely diagnosis. A classification of the lymphomas is based on cytological studies

and not on clinical manifestations. Mallory had divided them into seven groups: 1. Stem cell. 2. Clasmotocytic. 3. Lymphoblastic. 4. Lymphocytic. 5. Hodgkin's lymphoma. 6. Hodgkin's sarcoma, and 7. Follicular. He considers lymphocytic leukemia to be a manifestation of an underlying lymphomatous process and that we should discard the term leukemia as it merely represents a transient phase of malignant lymphoma and is not a disease entity. Hence I will not discuss whether this patient might have leukemia or an aleukemic state.

A diagnosis of Hodgkin's disease was made during her first hospitalization. This diagnosis was made in spite of the absence of a history of fever, histological studies and with the failure of the lymph glands to reduce in size following the x-ray therapy. Further evidence against this diagnosis is that the lymph glands were hard, whereas in Hodgkin's disease they are firm or rubbery and rarely ever hard. Hence it would seem that there is very little clinical evidence to support a diagnosis of Hodgkin's disease.

The enlarged glands of any of the lymphomas should have decreased in size following x-ray therapy; such a response is one of our diagnostic aids. I am going to rely heavily on this one piece of information to rule out the lymphomas, though monocytosis is apt to occur with Hodgkin's disease. Mallory has found that there is a diminution in the monocytes and a tendency to have leukocytosis in cases of lymphocytic and lymphoblastic lymphomas.

This is a good time to review the Brill-Symmers disease. This is a relatively newly described form of lymphadenopathy, which was first described by Brill in 1925 and again by Symmers in 1938. This disease is almost always mistaken for Hodgkin's disease, both of which are characterized, clinically, by generalized, occasionally localized, enlargements of the lymph nodes and not uncommonly by splenomegaly, but histologically they are very different. There is numerical and dimensional hyperplasia of the lymph follicles, with more or less varying types of characteristic cells. The ability of this disease to alter its morphology is a fundamental feature. It has a pattern of hyperplasia with potentialities for multiple types of differentiation. The end stage cannot be determined by the original picture. It may remain unchanged through life or it may, at an unpredictable time, undergo transformation into lymphosarcoma, or polymorphous cell sarcoma. It is a relatively benign disease except when it goes into one of these more malignant forms and is most malignant in the polymorphous cell sarcoma stage. Localized enlargement of peripheral groups of lymph nodes is the outstanding clinical feature. The axillary, cervical, or the inguinal nodes are most frequently involved. The glands vary in size from one to three centimeters. Neither the size, consistency, nor the attachments of these nodes distinguish them from other lymphomas. Other clinical features are weakness,

cutaneous lesions (exfoliative dermatitis); weight loss, cough, abdominal pain, pallor, burning of the feet, and dyspnea. The spleen may be enlarged and leukopenia is frequent.

The lymph glands in all the variants of this disease decrease in size following therapy with the x-ray, except the polymorphous cell sarcoma which is quite resistant to the x-ray.

Perhaps I am placing too much emphasis on the ineffectiveness of the x-ray therapy in this case, but such a fact tends to rule out the lymphomas unless it is the rare polymorphous cell sarcoma.

I believe that the cervical glands are due to metastasis from a neoplasm. The first symptoms were cough and sputum which makes it necessary to consider the possibility of some type of pulmonary pathology. The lung roots were thickened, there was paratracheal adenopathy on the right, and the lung markings were increased. There was not enough involvement of the lung parenchyma to make me suspect that infection was the cause of the hilar adenopathy. I would like to know more about the appearance of the shadow which obscured the left leaf of the diaphragm. Was this fluid, was it parenchymal involvement, or was it merely old plastic pleuritis?

Within the past year I have seen two cases of primary carcinoma of the lung which were very similar to this case. Dr. Watkins has added the first case to his collection of interesting and educational cases. The roentgenogram of this man revealed only a moderate enlargement of the hilar glands, the other one had enlarged hilar lymph glands with increased lung markings which were interpreted as being characteristic of congestive heart failure. The first man is apparently well one year after resection of the left lung; the other man developed supraclavicular adenopathy and died. Primary carcinoma of the lung is, however, much more frequent in men than it is in women.

The diagnostic possibilities are:

1. Metastatic carcinoma of the lymph glands from a primary carcinoma of the lung or mediastinum.
2. Lymphoma.
3. Brill-Symmers disease, Polymorphous cell sarcoma.
4. Hypertensive cardio-vascular disease.
5. If one is inclined to explain all findings in a patient by one pathological process it could be done in this case with the diagnosis of a malignant PHOEBROMOCYTOMA. This could cause the elevation of the blood pressure and might be responsible for the metastatic lymph glands; however, she is not as young as the average case should be, and there is an absence of a history of paroxysmal hypertension and it is rare for these tumors to metastasize widely before death.

DR. PHILIP E. RICE, Glendale, Arizona:

A 52 year old woman with symptoms of 4½ months' duration consisting of mild persistent cough, pain and swelling of legs, mild dyspnea, nervousness and menopausal symptoms is found to have advanced hypertension and enlarged hilar lymph glands. She gives a history of previous tuberculous cervical adenitis. During her illness she lost weight and in the past two weeks noted glands in the right side of her neck which are described as "three hard supraclavicular nodules, 0.5 cm. in diameter, on the right and smaller, soft, palpable, anterior cervical lymph nodes." There is scarring and induration under the right mandible, apparently the site of the tuberculous adenitis she once had.

The chest film showed "thickened lung roots and swelling of the right paratracheal lymph nodes. The lung markings were increased, and the left leaf of the diaphragm was obscured."

Her cardiac condition seemed to improve under medication but no change was noted in the hilar lymph glands after four—200 r. doses of radiation of the chest. Finally a biopsy was done which probably made the diagnosis. We are slightly handicapped by not knowing what this showed.

Can we determine if this is an infectious or a neoplastic disease? We are given only one temperature reading (which was normal) and no history of a febrile course. The blood count does not suggest infection but might be normal in some of the chronic diseases. The lymph nodes were apparently not painful or tender. These facts do not rule out such chronic infections as tuberculosis, blastomycosis, brucellosis, coccidioidomycosis and histoplasmosis, but make them unlikely. Having previously had tuberculous glands in the neck makes this a very tempting diagnosis. However, the chest rays show nothing that looks like adult tuberculosis and the neck glands show no signs of inflammation or suppuration. I also reluctantly pass over the other infections because of lack of evidence.

If this is a neoplastic condition, is the primary focus in the chest? Metastatic glands in the neck from lesions below the diaphragm should appear on the left but my anatomy book says that occasionally the thoracic duct divides, sending a branch to the right subclavian vein. The chest x-ray shows the hilar glands more enlarged on the right which would fit in with the glands found in the right side of the neck. **Primary pulmonary malignancy** is usually unilateral. The nodular type presents perihilar, dense, rounded masses, sometimes with the formation of an irregular cavity. The infiltrated type follows the larger branches of the lung tree, sooner or later advancing into the parenchymal tissue. Partial collapse may take place, with the usual accom-

paniment of atelectasis; pleural effusion is seen early. We cannot rule out this diagnosis but with such large hilar glands and metastases to the neck, it seems that we should have some sign of bronchial involvement (such as bloody sputum or atelectasis).

Hodgkin's disease, Brill-Symmers Disease, or lymphosarcoma might easily fit this picture, but we would expect some regression of the glands with the first x-ray treatments. From the record given, there seems to have been no change in these glands. However, I feel that we must have here something like Hodgkin's disease that produces multiple glandular involvement in the neck, thorax and quite likely also in the abdomen—possibly causing the leg pains and swelling. Also, enlarged glands around the renal arteries might conceivably be a factor in the hypertension.

Sarcoidosis is a condition which may cause multiglandular swelling without response to x-ray therapy. Boeck's Sarcoid or Sarcoidosis may involve any organ in the body, the lungs being among the organs most commonly affected, the bronchopulmonary and mediastinal lymph node enlargement being an early and persistent feature.

Garland reporting cases showing lung involvement by x-ray describes a rather set pattern of lymph node enlargement: a bilateral fairly symmetrical hilar enlargement combined with right paratracheal enlargement. (Anatomically the glands follow this pattern, with more on the right.) There may be also pulmonary infiltration or nodular densities varying from linear fibrosis or military densities to pneumonic shadows. Of 36 cases 13 showed pulmonary lesions and lymphadenopathy and 11 showed lymphadenopathy alone.

McCort, Wood, Hamilton and Ehrlich reporting 28 proved cases, say that the most pressing problem in the diagnosis of a mediastinal tumor is the differentiation of benign from malignant lymphagranuloma. All of their cases showed evidence of intrathoracic lymphadenopathy and peripheral lymph nodes were enlarged in 26 of the 28 cases. The peripheral nodes were small discrete and not confluent and were often insignificant although they were found to be involved. The spleen was enlarged in only three cases. A significant finding in 23 of 28 cases was elevation of the globulin fraction of the blood protein. (Our case shows a high normal globulin with a low normal serum albumin.) I will not enter into the discussion revolving around the possibility that sarcoidosis results from tuberculosis except to say that the evidence is not conclusive.

To conclude these remarks I must say that only biopsy can prove the diagnosis in this case—but sarcoidosis is to my mind the most likely answer.

SOCIALIZED MEDICINE IN BRITAIN

WARREN H. COLE, M. D.

Chicago

As many of you know, Britain changed to a very complete socialization of their medical service on July 5, 1948. Previously about 45 per cent of the population were insured on the panel system. With the advent of the new act, all people are eligible and are urged to enroll in the insurance plan. Already at least 90 per cent of the people have joined. The administration of the new act is somewhat complicated because of the numerous committees set up to carry it out. The act states that the maximum number of people on a doctor's panel may not exceed 4000. However, it is highly improbable that the average number of people on a panel will be much more than 2,000 since there is one doctor for each 1000 in the combined population of England, Scotland and Wales. Assuming that a great number of doctors will be in full-time work, including research, public health, etc., the figure of one doctor per 2000 inhabitants still remains a liberal one, per practicing physician.

The patient is allowed to choose his doctor, if the doctor's panel is not full. However, once having made his choice, he must always call that physician as long as he is on that physician's panel. The doctor or individual may break this agreement by giving each other a week's notice.

Salary of Physicians

The general practitioner will receive a basic salary of \$1200 annually, plus approximately \$3.00 per year for each person on his panel. If he had the maximum number of patients on his panel, his gross income could be \$13,200. However, since the average number will probably be no more than 2000, the average gross income is apt to be around \$7,200 per year. Close to \$3,000 of this will probably have to be paid out in expenses, including office rent, secretary, nurse's salary, etc. The act states that the physician is privileged to continue his private practice, but there is not apt to be a very large number of patients who will consult the general practitioner as a private patient.

Cost of Act and Defrayment of Expenses

It is estimated that the National Health Serv-

ice Act will cost between \$600 and \$800 million annually. Already it is appearing that the cost will be greater than this because of the unexpectedly large number of patients applying for service of one type or another. Not all of the money referred to above as annual cost is attributed to medical care, since sickness benefit, unemployment benefit, funeral fees and numerous other security programs are included in the act.

The employed male will pay about \$52 per year for his insurance. The employed female will pay about \$33 per year. The employer pays about \$43 per year for coverage of expenses. If the individual is self-employed, he contributes about \$62 per year.

The Act makes available the sum of about \$264 million for the purchase of private practice. It has been a custom in Britain for a long time for the physician to sell his practice when he moves or retires. The government is of the opinion that this is a poor practice and is attempting to abolish it by ruling that once the government has purchased a practice, it can never be resold again.

Specialists and Consultants

In a report published in May, 1948 by the Interdepartmental Committee on Remuneration of Consultants and Specialists, the salary of the specialist was designated. During the three year period when he is attaining his training as registrar, corresponding to our resident, he will be paid \$2400, \$2800 and \$3200 for the three years, respectively. A specialist appointed full-time to a hospital staff at the age of 30 or below will receive a salary of \$5000 per year. In general, the starting salary is increased \$500 per year for each year beyond the age of 30; likewise, the salary is increased \$500 per year for each year of service. To encourage this work on the part of the specialist, the government offers an additional award of \$10,000 per year to 4 per cent of all specialists; an award of \$6000 per year is offered to 10 per cent, and \$2000 to 20 per cent of specialists. A consultant may work full-time, part-time, or may elect to spend all of his time in private practice. It is probable that very few consultants will risk this latter method since it appears that the purpose

of the government is to abolish private practice. The whole-time specialist is expected to work eleven half days and is entitled to vacations and leave of absence for study of research. However, since the Act has gone into effect, it appears that the consultant actually will not often get the \$10,000. For example, he is offered \$1000 a year for a three-hour session, with a maximum of eight sessions. At present there have been very few senior whole-time appointments, although a certain number of whole-time junior appointments have been made. The part-time specialist can charge whatever he wishes as long as his patients are in a nursing home. When they are sent to the private wing of a hospital, all of the rooms except a few have fixed fees for operations, e.g., \$250 for a major operation, \$100 for a hernia, and \$40 for a minor operation.

The professors in the medical schools have, in general, been paid low salaries, but the government has expressed the intention of raising their salaries in the new Act.

The patient of the general practitioner may ask to be seen by a certain specialist. This request is handled through the hospital, which will arrange for the appointment if the scheduled hours of the consultant permit it. If the patient cannot wait for the appointed time, he may ask for another consultant or see the consultant as a private patient.

The Nursing Profession

Nurses are also employed according to provisions designated in the new Act. The salary for a nurse just completing her training is \$480 per year plus maintenance. This is approximately the same salary existing before the Act took effect. Increases are provided for seniority, merit, increased responsibility, etc.

Objections of the British Medical Profession to the Act

The members of the British Medical Association have raised numerous objections to the Act, as listed below:

1. They contend that the standard of medical service will deteriorate, largely because there will be no incentive for the doctor to do especially good work.

The number of office calls in the doctor's office are expected to increase tremendously, since patients will be able to get their services free. This great increase in the number of patients will make it impossible for the doctor

to properly examine them. He is bound to make many errors in diagnosis and treatment.

2. The doctor-patient relationship will be destroyed, largely because the doctor will be too busy to take the time to talk in the fairly leisurely manner which was possible before the Act went into effect. The patient will, accordingly, not have confidence in his advice.

3. The new Act will result in complete regimentation of the medical profession. The profession emphasized that this is against the principles of British government, which has always proclaimed full liberty and freedom for its citizens. They contend that even Russia encourages competition in medicine, realizing that it will improve medical service.

4. The doctor has no choice as to where he will practice. Thus, father and son or intimate friends cannot join in practice except by pure coincidence.

5. The Minister of Health has control over all hospitals, thus setting up a strong monopoly.

6. The income of the inexperienced doctor may be just as high as the experienced one who has spent many years in training. They contend that this is not only an injustice but that it will discourage physicians from achieving greater learning.

7. The patient will have very little choice of his doctor. Once he is on a doctor's panel, he remains so unless he wishes to apply for a transfer. He can obtain the services of a special consultant if the consultant's calendar permits him to be seen in a reasonable time.

8. The demand for hospital beds is already overtaxed. The profession contends that the Act will give rise to a much greater number of requests for hospitalization for minor illnesses, since the patient will not have to pay for this care. The deserving patient will have difficulty in getting hospital care, especially if the disease present is of an urgent nature.

Benefits Available in the United States Without Socialized Medicine

Up until a few years ago, it might be claimed (with a grain of truth) that not many of the benefits to be derived from a socialized type of medicine could be obtained here in the United States under routine medical care. However, with the advent of the numerous types of medical insurance now available, improvements in medical care for the indigent, etc., it can now

be truthfully said that the advantages of socialized medicine can be achieved as indicated below under the present system, and without the disadvantages incurred by adoption of socialized medicine.

1. Veterans of all wars can now obtain excellent care in veterans hospitals, largely because the medical schools and teaching centers have volunteered, at government request, to take over the responsibility of supplying the professional staff in the veterans hospitals. Unfortunately, there are insufficient teaching institutions to supply staffs to every veterans hospital, but at any rate the complicated cases requiring great facilities in diagnosis and treatment can be and are being shifted to veterans hospitals which have better facilities and a better type of staff. Before the end of World War II the professional care in the veterans hospitals was so poor that a national scandal was threatening, until the medical schools and teaching institutions took over the duties of staff appointment.

2. The Blue Cross and Blue Shield represent types of medical insurance offering service on a non-profit basis. This is becoming quite popular insofar as about 32 million people are insured in Blue Cross and 9 million in Blue Shield. The former insurance pays for hospitalization, whereas the latter offers insurance toward part-payment of the doctor's fee.

3. There are numerous other types of medical insurance, many of which are offered by medical societies or insurance companies. The great variety of insurance plans available represent a great advantage, largely because the American citizen is anxious to be allowed the choice of more than one product; he obtains satisfaction in being able to select the one of his choice.

4. Medical organizations are taking steps to obtain young physicians for sparsely populated areas. For example, Illinois, Kansas and other states are joining with organizations such as state departments of agriculture, to set up plans to encourage young citizens in small towns to obtain medical training through a loan extended on condition that they return to their original town to practice, at least for a time. As soon as

this plan gets under way, it will unquestionably do a great deal toward relieving the scarcity of doctors in the sparsely populated areas.

5. The indigent can already obtain good medical care since the large communities have city and county hospitals which are supported by the public and which will take care of indigent cases. There may be considerable complaint that the white collar class is left without proper protection. The fact that about 50 million people are already enrolled in some type of insurance is a good indication that people are taking advantage of the opportunity and are protecting themselves against unexpected high expenses for medical care.

Obligation of the Doctor to Himself and Community

The medical profession in the United States believes that socialized medicine would be an undesirable type of medicine for this country. They can actually present reasons for this assumption. Unfortunately, the public itself is not yet aware or informed of the advantages of socialized medicine which can be derived without shifting over to socialized medicine with its numerous disadvantages. Although some effort has been made on the part of large medical societies to properly inform the public, up to date we will have to admit that this program has failed. It has failed largely because such a program is inadequate. The population as a whole cannot be reached by programs in large communities. It therefore becomes the obligation of the individual physician to talk to the lay public, giving him reasons why socialized medicine would be to their disadvantage. It is not sufficient merely to say that socialized medicine is no good. Such a program of argument actually convinces the citizen that the reverse is true, particularly if the argument becomes heated. In other words, the physician must start off with the fact that he is entirely sympathetic with the desires of the public in obtaining better medical care, and in a logical way show how they can obtain the benefits of socialized medicine without accepting such a system along with its disadvantages.

THE SALT RIVER VALLEY BLOOD BANK

The Salt River Valley Blood Bank, at 710 East Adams Street, Phoenix, has just completed its fifth year of serving the community with the

celebration of its birthday recently. Since its organization in October of 1943 under the auspices of the Maricopa County Medical Society,

the bank has expanded its operation many times in its sometimes grim, sometimes rewarding business of saving the lives of Phoenicians and valley residents.

Originally established to furnish whole blood to physicians for their use in operations and emergencies, the bank has expanded its output from not quite 200 pints a month until it now draws, processes, types and delivers 600 pints a month. This growth has been due partly to the increase of population during the war years, and to the many new therapeutic uses which doctors have discovered for blood transfusions in illness, surgery and shock.

In addition to 24-hour delivery service to hospitals, laboratories and clinics in the Salt River valley, the bank now has subdepots in Mesa, Yuma, Prescott and Fort Whipple Hospital, and will send on emergency call blood to any part of the state. Through the cooperation of the Civil Air Patrol and independent aviators, blood has been flown to all parts of the state.

In the past month the bank has again begun to manufacture its own plasma. Formerly surplus plasma from the American Red Cross was used, but recently the bank has been converting blood into plasma pools here.

Thomas Bate, M. D., is now chairman of the board of directors of the bank, assisted by Dr. H. D. Ketcherside, Mrs. Karl Harris, Dr. Howell Randolph, Dr. O. O. Williams, Cavett Robert and Dr. C. B. Warrenburg. W. Quinn Jordan is the executive director.

The bank's director was instrumental in the formation of the American Association of Blood

Banks, and has served as its treasurer for the past two years. There are now more than 400 independent blood banks in the association, which has its headquarters in Dallas, Texas.

Recent financial economies in the bank's operation have reduced the cost of blood to the patient, and have made it possible for patients to receive blood entirely free of charge by replacing on a two for one basis.

Blood is not the only life-saving commodity which the bank dispenses. Its laboratory and storage facilities also house the Salt River Valley Breast Milk Bank, which oversees the drawing, pasteurizing and storage of human milk for premature and sick babies. Milk is deep frozen in 4 and 8 ounce jars, and many tiny citizens today, as soon as they are old enough to talk, will thank the bank for its help in their early battle for life. Dr. John Kruglick is technical consultant for the Breast Milk Bank.

Soon another "bank" will be added to the Medical Society's list of services, the Bone Bank. Dr. James Lytton-Smith and other orthopedic surgeons have laid the groundwork for this latest storehouse. Segments of human bones will be prepared and stored, for use in surgery which necessitates grafting and the building of bone structures for repair of injured persons.

Since October of 1943, more than 17,500 pints of blood have been transfused to patients in hospitals and clinics throughout the county and in Northern Arizona and Yuma. Last month was an all-time high, with 642 calls for blood being delivered at all hours of the day and night from the bank.

WHAT WILL WE DO WITH THE DOCTOR'S \$25? The National Campaign Plan of Procedure

MR. CHAIRMAN AND LADIES
AND GENTLEMEN:

Every minister preaches from a text—and every campaign, if it is a successful campaign, has to have a *theme*!

The theme, if it is geared to reach more than 100 million people, as we must in this campaign, should have simplicity and clarity.

Most of all, it must high-point the major issues

of the campaign with great brevity—in language that paints a picture understandable to people in all circumstances.

EVERY DOCTOR A CAMPAIGNER

That's one of the reasons we have a large, blown-up color reproduction of the famous Fildes painting, "THE DOCTOR," on exhibit here today, with the simple caption under it:

"Keep Politics Out of This Picture!"

The picture and the caption, even without elaboration, focus attention on one of the most

(Presented by Clem Whitaker, Leone Baxter, Directors of the National Education Campaign of the American Medical Association, for the Conference of State Medical Societies, Chicago, February 12, 1949.)

important arguments against government-controlled medicine.

Smaller color reproductions of this famous painting soon will go up in doctors' offices all over America as one of the first steps in dramatizing our case to the American people—and more important—as the first step in *making doctors campaigners in their own behalf*. For this purpose we have added a hundred words of text which help to establish the *theme* of this campaign.

I'm going to read you that text, because it stresses, in simple language, the essential points of the case which we believe will turn the tide *against compulsion and in favor of voluntary health insurance*.

The text is as follows:

Keep Politics Out of This Picture!

When the life—or health—of a loved one is at stake, hope lies in the devoted service of your Doctor.

Would you change this picture?

Compulsory health insurance is political medicine.

It would bring a third party—a politician—between you and your Doctor. It would bind up your family's health in red tape. It would result in heavy payroll taxes—and inferior medical care for you and your family. Don't let that happen here!

You have a right to prepaid medical care—of your own choice. Ask your Doctor, or your insurance man, about budget-basis health protection.

This is signed: American Medical Association.

These smaller posters will be sent under the signature of the A.M.A. to show medical men throughout the country that the Association is resolutely behind the National Campaign. They will be sent to doctors only at their own request. Return postal cards will be in the mail shortly.

The dimensions of the posters are approximately 18 x 20 inches. They are dignified—but carry a strong message—stronger, we are aware, than most doctors are accustomed to display in their waiting rooms. Their final cost, including the right to reprint the famous picture, art work, stock, printing and mailing comes to about 30 cents each. If we can light the crusading fires, and tie into the campaign the *majority* of the doctors of this country, for the cost of 30 cents each, the results will be well worth the price!

For the information of some of you who are wondering just when these will begin to show

up in doctors' offices—here is the production schedule: This poster has been in the works for three weeks. It was out of our hands on February 7. The press proofs will be submitted to us on March 3. The schedule calls for delivery to the bindery on March 15; cut and drill sheets, March 21; production completed March 25; inserting, addressing and mailing completed on April 4.

That's a lot of time—60 days; a lot of effort; a lot of money. And we look for real results.

THE REAL AMMUNITION

The major portion of the campaign budget will be spent for production of materials—the campaign ammunition. We are not going to waste any campaign funds on faulty ammunition. Any general pamphlet produced will have to be printed in minimum lots of 7,500,000—just to put 50 copies into each doctor's hands alone. To make the smallest trickle beyond that outlet to the public, we shall have to print a minimum of 10 million copies of any piece produced. That means simply that we can't afford to experiment. We can't afford to throw our next-best or divided efforts into print and hope it will suffice. What we produce must be brief enough to read—dramatic enough to create sentiment—and sound enough to produce action from the thinking people of this Nation.

Some very excellent basic material has been produced by men of medicine and men close to the profession, long before the National Education Campaign was initiated—and that will give the production of the new material the most helpful impetus.

One of the pamphlets in the planning and production stage is a small, sparked-up *human-interest folder* to satisfy the need among doctors for a simple piece that can be given to patients, mailed with statements or placed in waiting rooms. It will be suitable as well for general use by allied professions and industries. This will be a special appeal, illustrated public pamphlet, geared to the interests of the average citizen—the veteran, farmer, mother, businessman, wage-earner, etc.

The doctors will receive their first copy of the pamphlet direct from A.M.A. headquarters, with a brief letter, telling some of the highlights of the proposed campaign, and advising the doctors that they can get the pamphlet in quantity through their State or County medical societies.

A *Question and Answer pamphlet* which actually will serve as the doctor's campaign handbook, also is in process. The handbook should give every doctor, not only the facts he needs to argue his case effectively, but also simple instructions on how to practice on the body politic.

The small leaflet will be a general public piece and can be distributed through many channels. The handbook, while beamed to doctors, also will be used for distribution among members of our lay committees. We believe that the dentists' associations, the druggists' organizations, the hospital associations, the medical auxiliaries and various other closely related groups should be urged to turn out similar material, or use ours under their own imprints.

We also plan to assist many cooperating national organizations — veterans' groups, for example—to produce pamphlets slanted to their own memberships, and emphasizing the arguments which will have special appeal to them.

A third pamphlet is in preparation whose title will be "*Calling Every Doctor — This Is an Emergency!*" This, too, will go directly to physicians, with a letter from the American Medical Association. It will be a briefly presented statement of the issue, the objectives—and the procedure to accomplish those objectives. Its purpose will be similar to that of the poster—to get every doctor who believes in the private practice of medicine working enthusiastically with his local campaign committee.

A PAMPHLET CAMPAIGN

Actually, this issue is made to order for *pamphlet presentation* . . . and we plan heavy use of pamphlets, running into many millions of copies, to tell medicine's story dramatically and effectively to both *leaders* of public opinion and *rank and file* citizens throughout the country.

With new developments and changing conditions in the campaign, there likely will be need for frequent revision of the text of early pamphlets, or the production of entirely new material. As a consequence, a heavy load will fall on our writing and production department and one of the first problems of course is to produce copy fast enough to satisfy the press, A.M.A. members, State and County societies and the literally hundreds of business and civic groups which all require special servicing.

Above all, the written material in this campaign must be emotional, fighting prose. We

can't win an audience with dry, statistical copy. We have to give the people *facts*, but in very readable form. The surest way to break down apathy and public disinterest is to turn out copy that stirs the emotions—and in doing so, opens closed minds.

It is vital, too, that much of this flow of words should reach the people through *normal* newspaper and magazine channels, rather than through direct publicity releases. We intend to work with the great newspapers and the national magazines to get them to do special jobs, with real reader interest, and that work already is well started. The story of British medical practice today, as an example, is actually one of the most important stories of this era. A.M.A. already had started the wheels moving to get the truth and publicize it before this Campaign began. It is a story which must be told and re-told by staff writers of American magazines and newspapers.

Once it has been printed in a magazine or newspaper of national importance, re-prints of the article will be placed in the hands of key people throughout the country.

ORGANIZATION PHASES OF THE CAMPAIGN

There are two distinct phases of *organization activity* planned.

First is the plan of organization and operation for medical groups, which involves the relationship of the State and County societies to the A.M.A. in the conduct of the campaign. This calls for a definite division of work, with fixed responsibility in each area, so that a vigorous grass roots campaign can be developed.

Second is the plan for mobilizing the strength of the major public organizations, local, State and National—groups like the farm organizations, the more powerful business and civic associations, fraternal, religious and veterans' organizations.

The program with respect to the medical organization structure, has been discussed carefully with the Campaign Coordinating Committee members in order to reach practical and intelligent decisions. The job must be done with as little friction as possible, so that doctors in the field will be directing their energies to winning converts, and their fire to the opposition. It is usually difficult to get 150,000 individualists (and most doctors are individualists) to agree on anything, but if ever the members

of the medical profession needed to pull together, this is the time.

STATE MEETINGS

A number of States have reported that within the next 30 to 60 days after the National Meeting of State Representatives (February 12, in Chicago), they are calling meetings of County Society representatives in their own States, for the purpose of passing along to them the National Plan of Campaign, and determining on their own procedures in relation to it.

Accordingly, for their help and guidance at this time, we will chart some of the important work which needs to be done within the States.

COUNTY SOCIETY ACTION

1.—Every County Medical Society in the United States should adopt a strong resolution against compulsory health insurance within the next 60 days—and should then direct the President of the Society to communicate its action, by letter or telegram, to the Congressman (or Congressmen) representing the district; also to the State's two U. S. Senators. The Society's resolution should emphasize the inevitable deterioration of medical care and the danger to the public health, once government medicine is in operation, and should stress the tremendous growth of the voluntary systems and that the American people are taking care of the problem in the American way. The President's letter to the Congressman or Senator should ask for a reply, so that his position can be made known to the doctors of his district. Copies of all replies should be forwarded to The National Campaign offices and to the Washington office of A.M.A. as rapidly as they are received. We will provide several form resolutions as a guide to the Societies.

The combined political strength of all the doctors in a congressional district is impressive—and we need to put every Congressman on notice of the position taken by his doctor constituents.

LAWMAKER'S DOCTORS

2.—We need to locate *the personal physician of every Congressman and every U. S. Senator* (the County Society secretary probably should take on that job) and have him send a personal letter to his patient, the Congressman, telling him of the danger of socialized medicine, and asking for his help in defeating any compulsory

health insurance program which may be submitted. We will provide form letters, but the Society secretary should help the doctor, if necessary, in re-writing and personalizing the letter in each instance. This letter also should ask for a reply—and again, the information in the replies should be sent to the National Campaign office and the A.M.A. Washington office.

SPEAKERS BUREAUS

3.—We need an active Speakers' Committee in every County Society to cover local meetings. The Executive Secretary of each of the State Societies should aid in organizing this work. We will provide form speeches, but in many cases they will need to be localized to meet local conditions.

One of the very great requirements is for every State to develop top bracket speakers both in the profession and apart from it, who can be called on for important meetings, both State and National.

DEBATES

We do not believe it a sound campaign practice to sponsor too many debates. They make a forum for the opposition which would be difficult for them to secure otherwise, and they are too easily stacked. This is particularly true of broadcasts of debates open to the public. Our speakers will stick to *the facts*. But already in this campaign, the opposition has begun to use the facts very loosely. Their claques in the audience are briefed to applaud wildly every trick phrase their speaker utters. And the public has no way of knowing which is fact and which is fancy. If our case were so poor that we had to stack meetings, it would not be worth the effort we shall all put into this campaign.

PRESS COMMITTEE

4.—We need a Press Committee in every County Society to make personal calls on the editors of all newspapers in the County and urge their support of medicine's position. This work, again, should be coordinated by the State Society.

ENDORSEMENT DRIVE

5.—Since our first objective is making the position of the people on this issue known and recognized by our representatives in Congress, much of our first campaign effort must continue to be devoted to getting organizations on record in opposition to compulsory health insurance.

In this connection, one of the first mailings

from the National Campaign Headquarters to the States will be a list of conventions scheduled in each State during 1949. This should reach you during the coming week. This is not to be considered a complete list, but we sincerely hope it will be helpful in beginning the drive for resolutions in your area. It will include all conventions reported at this early time; you will need to add to it as others are scheduled. The list will contain the following information:

- Name of organization
- Town where convention is scheduled
- Estimated attendance
- Person to contact, to our best knowledge
- Whether convention is national, state or local.

Some organizations on the list may have a policy of not taking action on public issues, or will profess "no interest." When an issue is of fundamental importance, as ours is, however, and when somebody takes the time to explain the honest facts and drive for a resolution, virtually all the important organizations do take action.

As fast they are produced, form speeches geared to different types of audiences will come along to you; also suggested form resolutions which can be localized or particularized as you see fit; also the Question and Answer pamphlet providing brief, factual answers to the most commonly asked questions concerning the issue of compulsory health insurance. Armed with this material, a good speaker will have little trouble making a splendid, positive case before even a difficult group.

Two Doctors Named To State Health Unit

Two new physicians were appointed to the staff of the Arizona Public Health Department Wednesday by Dr. J. P. Ward, superintendent.

Dr. Ward announced the appointment of Dr. Lad R. Mazera to become acting director of maternal and child health, and Dr. Edwin H. West as assistant director of the Tucson-Pima county health unit.

Dr. Mazera formerly served as assistant director of the Maricopa county health unit and Dr. West formerly served at Lucedale, Miss.

ENDORSEMENTS . . . PROCEDURE

Since the value of formal action from any group is in exact proportion to the work done to capitalize on it, these are some of the things which must be done, once a good resolution is in your hands:

If it is from a strong, Statewide organization you should send copies of the resolution first thing to:

- Your two U. S. Senators
- Your Congressmen
- Your State Legislators
- The A.M.A. office at 1302 18th St., N. W. Washington, D. C.
- The National Campaign Headquarters 1 North LaSalle, Chicago.

Every County Medical Society, immediately it has acted, should send copies of its resolution to:

- Its two U. S. Senators
- Congressmen from its own District
- State Legislators from its own District
- Its State Campaign Chairmen at the State Medical Association Office
- The A.M.A. Office at 1302 18th St., N. W. Washington, D. C.
- The National Campaign Headquarters, 1 North LaSalle, Chicago.

Action of other County or City organizations should be reported to U. S. Senators only when deemed of sufficient importance to merit such handling, but should be reported at once to all others listed above.

Resolutions sent to all Congressmen should be accompanied by *covering letters* asking for a reply, in order to keep advised, if possible, of the position of your legislative representatives.

Originals of all resolutions should be kept in the originating office, unless otherwise requested.

Copies of resolutions should reach the press and radio on the same day action is taken if possible, through your State or County publicity channels, as determined by your Campaign Chairman.

When an organization has acted, it should really be asked to go to work in the campaign:

- a. getting literature to its membership, either through meetings or by use of its mailing list, or both
- b. using its house organ or news letter for both news and editorials on the issue

- c. offering its talented members as volunteer speakers on the issue of compulsory health insurance
- d. (Members on record in one organization can help, too, in presenting resolutions to other organizations of which they are members, and helping to steer them to favorable conclusions.)

Most of the State Medical Associations have working organizations long in existence and thoroughly ready and able to handle their part in the Campaign.

6.—Machinery will have to be set up in the few States where it is not already operating, probably under the direction of the State Society Office, to see that shipments of materials from the National Headquarters actually get into

doctors' offices and finally into the hands of doctors' patients.

NAME YOUR STATE CONTACT WITH NATIONAL HEADQUARTERS

It is important to name the person, presumably in your State Association office, to whom the National Headquarters will channel supplies of literature and other materials for fast distribution in your State. His name, address, and telephone number should be sent at once to the National Campaign Headquarters.

In some States it may be desired that supplies go direct to the County Society offices. However, it is the feeling of the National Campaign directors that campaign materials in general should channel through the State Medical As-

ARIZONA MEDICAL ASSOCIATION

Annual Meeting

Tucson

May 8 - 9 - 10 - 11, 1949

HEADQUARTERS — HOTEL PIONEER

A. J. PRESENT, M. D., Reservations Chairman
23 East Ochoa, Tucson

Council and House Sessions: May 8

Scientific Sessions: May 9 - 10 - 11

GUEST SPEAKERS

1. Irving S. Wright, M. D.
Internist, New York City
2. Willis D. Gatch, M. D.
Surgeon, Indianapolis, Indiana

In addition there will be a speaker supplied by the National Foundation of Infantile Paralysis and a panel of local speakers.

See the April *Arizona Medicine* for the complete panel of speakers and subjects.

sociation machinery, and down to the County Societies under the direction of the State itself. That, we believe, should be determined within each State.

AUXILIARIES ARE EFFECTIVE

Obviously, the Women's Auxiliaries of the Medical Societies will be able to carry a big share of the load. As some of the California representatives will tell you in that State's campaign on the issue of compulsory health insurance, the women accomplished some of the most effective work done in speaking before women's organizations, in literature distribution, in securing endorsements and in keeping the club and women's editors enthusiastic on the issue.

COMMITTEES

It is important within the States to organize committees of doctors, both on the State and the County basis, who are able to give their time to the Campaign objectives, to handling speaking engagements and to working on endorsements.

Laymen may be added to committees as time goes along, as the work gets heavier and as laymen become more interested in the issue. Committees should be kept close-knit, however, and controlled by the profession's own Chairman.) In any case, help from leaders outside the medical profession should be sought and welcomed. Not only will such aid lighten the load on doctors, but it will help build the broad public picture of the danger in socialized medicine, to every other element of our national life.

CONCLUSION

We recognize that A.M.A.'s permanent staff, headed by Dr. Lull, has a full load of work in just maintaining its normal activities. We will need a tremendous amount of help from them, however, and we have had many warm assurances of their desire to be in the front lines of the battle, as they have been for years past.

We visualize that they will serve in many capacities, giving the National Campaign the aid of their counsel and guidance, as required, providing the background material and the knowledge of the vast medical organization which we so badly need, flying into key States to carry the message to Garcia, maintaining lines of communication with all the State and County Societies, opening doors everywhere that are vital to the success of medicine's campaign.

The Public Relations Department of the A.M.A., under the very capable hands of Larry

Rember and his staff, is going to have a tremendous task to perform. Its work will be vastly heavier as a direct result of the campaign. The States, incidentally, probably will see more of Mr. Rember, Mr. Bach and Mr. Doscher than ever in the past, for part of their work will be "trouble-shooting" in areas where the campaign at one time or another may bog down and require a jet-propulsion assist.

Their work will coordinate closely with the National Campaign and in many respects will overlap it.

They will make an intensified, affirmative campaign to drive home to the public the vital part the medical profession plays in the lives and the health of Americans. They will intensify their efforts to interpret factually—and dramatically—the work of the Departments of the A.M.A.—work that daily reflects highest credit on the profession and which has made the entire world deeply respectful of the A.M.A.

We are confident, gentlemen, that the Campaign which has been laid out is a practical, workable, effective campaign, and will produce the results we must have. We are confident that working together, the fight against government-controlled medicine can be won—and that when it is over, medicine will have pointed the way for the whole Nation, at a time when the Nation might easily travel either road—toward a controlled economy or toward a free economy.

We sincerely believe that the individual doctors throughout the Nation, who have paid \$25 each to tell their story to America, will feel proud, as the story unfolds toward its conclusion—proud of their part in writing one of the greatest and most significant sagas of American history.

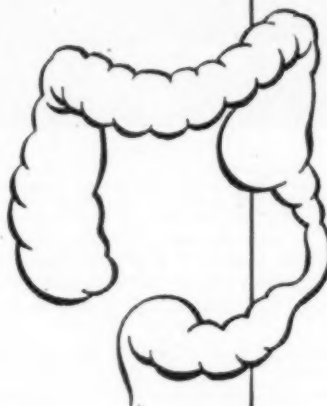
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*Collins, E. N.: The Diagnosis and Treatment of Irritable Colon: Physiologic, Local, Irritative and Psychosomatic Factors, *M. Clin. North America* 32:398 (March) 1948.

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Editorials

DIGITALIS OR DIGITOXIN

*Should Digitalis-leaf be Replaced by
Digitoxin?*

Certain scientific publications and advertisements have prompted many physicians to use digitoxin in place of the whole leaf of digitalis. Sufficient time has now elapsed, and clinical experience has been broad enough for us to reconsider the actions, indications, and the use of this potent glucoside. Digitoxin has been the most widely accepted of the glucosides of digitalis, and is marketed under trade names such as "Digitaline Nativelle," "Purodigen," and "Crystodigen."

An interesting commentary from Von Jakseh's book on poisons, published in 1910, was recently quoted by Master¹ as follows: "Digitalin and digitoxin are frightful cardiac poisons. Their use at the bedside necessitates the greatest care. A single excessive dose of these glucosides invariably results in death from cardiac paralysis in a short time." This statement, although almost 40 years old, is worthy of remembrance today.

The glucoside, digitoxin, is 1000 times as potent as the digitalis leaf. It has been reported that digitoxin has certain advantages over the use of digitalis leaf. These advantages are stated

to be that—it is more quickly and completely absorbed from the gastro-intestinal tract; it is less irritating to the intestinal tract, hence produces less nausea and vomiting; it is more uniform in potency; and the dose is by actual weight of the drug rather than dependent on biological assay, such as the "frog" or "cat" units.

It has been generally accepted that a single dose, 1.2 mg., of digitoxin is the digitalizing dose. It has not been clearly indicated that such a dose is merely the "average dose," and that it should be varied for each individual case, depending upon individual variables such as: size, age, sex, general physical condition, individual susceptibility, and the physical activity of the patient. A similar dogmatic rule for the maintenance dose, namely 0.2 mgs. daily, has been followed for all patients irrespective of the variables. These practices prevail in spite of Gold's findings that 1.2 mg. is the correct dose in only about three-fourths of the cases, and not in 100 per cent. One-fourth of his cases required more or less of the drug. Gold has stated that the single-dose method is of real advantage, and that he has not encountered any trouble in approximately 1000 such administrations; hence he believes that it is safe beyond question. It is largely due to his statements that the present widely used unvariable dose system has evolved.

Errors have probably been due, largely, to misinterpretation of the phrase "average full digitalization dose" as used by Gold. The term "average dose" has been interpreted in the same sense that it is used in the United States Pharmacopeia, where it means merely a rough guide to the physician so that he may have an idea as to the single dose which may be used to start a medication. Eggleston² states "it is usually a dose which is par excellence, safe; safe in the sense that it will do no harm." Dr. Gold's use of the term "average dose" was scientific, but it was not clearly defined as such; hence the dose has been applied with the idea that it is the dose which is well tolerated by all and one which will digitalize nearly all patients. Gold³ repeats that in using the dose of 1.2 mg. about 70 per cent of the patients are affected by plus or minus 25 per cent of the "average dose" and that the most susceptible require only one-third as much as the most tolerant.

There are differences of opinion as to whether digitoxin should be given in one large dose for digitalization or if the dose should be divided

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over a longer period. If the dose is divided over a 24-hour period the dose becomes 1.8 to 2.1 mg. DeGraff, Batterman, and Rose¹ found that in cases of congestive heart failure the average therapeutic dose was 2.2 mg., and that if divided doses of 0.4 mg. were given daily for three to six days, the average requirement was 1.7 mg. which varied from 0.9 to 2.4 mg. The majority of physicians will be wiser, except in cases of the rare true emergency, if they apply the policies of Eggleston³ as stated—"I like to introduce 1.5 Gm., or thereabouts, of digitalis, or the corresponding dose of digitoxin, within a period of twenty-four hours because, sure as I may be of the activity of the drug, I am never quite sure of the susceptibility or sensitivity of the individual patient, nor quite sure that he is telling the whole truth when he insists that he has not taken digitalis before." There is seldom encountered a situation in which digitalization is an emergency requiring less than 24 hours for its accomplishment.

DeGraff et al⁴ believe that the administration of an average dose for the treatment of any patient is not in the best interest of the patient because treatment may result in incomplete digitalization or toxicity. These authors believe that 0.2 mg. is about twice the minimal maintenance dose and that 30 per cent of the patients on such a dose will, within 12 weeks, manifest signs and symptoms of toxicity. It has been my experience that the majority of patients will be adequately maintained if given 0.1 mg. daily; that a few will require 0.15 mg.; and that only occasionally will it be necessary to give 0.2 mg. daily.

DeGraff⁴ expresses the opinion that digitoxin is a satisfactory drug when used properly, but that one must be extremely cautious in its use because of the possibilities of toxicity which, on the basis of an extremely slow rate of dissipation, may be serious and prolonged. This slow dissipation has also been stressed by Master.¹ DeGraff et al⁴ found that anorexia, nausea, and vomiting, were commonly the earliest symptoms of toxicity but that there was not any way of predicting the more serious forms of toxicity, such as abnormal rhythms and heart block, which might be present independent of the less serious toxic symptoms. These toxic symptoms may persist for many days after the drug has been withdrawn.

Master¹ lists the toxic symptoms and signs

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as: nausea, vomiting, blurred and yellow vision, abdominal cramps, diarrhea, restlessness, mental confusion, disorientation and psychosis, premature contractions, bigeminy, trigeminy, multiple focal bidirectional premature beats, tachycardias of auricular, nodal and ventricular origin with rapid ventricular rates, auricular fibrillation and auricular flutter, partial and complete heart block, and electrical alternans.

During a period of 13 months Flaxman⁵ observed 30 cases of digitoxin poisoning in which 66.6 per cent had disorders of rhythm and only one-third presented the classical signs of digitalis poisoning such as anorexia, nausea, vomiting, weakness and fatigue, and he did not encounter diarrhea, yellow vision or scotoma. There were two deaths in his series—one dying of paroxysmal ventricular tachycardia and the other from auricular fibrillation and bigeminy. He concluded that considerable caution should be exercised in the administration of the digitoxin preparations in the regularly advised dosage to any patient suffering from congestive heart failure, because the action may be rapidly intoxicating to the cardiac musculature and its conduction system. The warning symptoms and signs of whole-leaf digitalis overdosage are easily recognized clinically. The more toxic effects of digitoxin are more difficult to recognize and are more dangerous.

Stewart and Newman⁶ have found that it is more difficult to keep their patients in equilibrium when using digitoxin than when they were using the whole-leaf digitalis.

Digitoxin offers no particular advantage over digitalis leaf for the routine treatment of patients with congestive heart failure. Because of its slow dissipation and the possibility of prolonged and severe toxicity, digitoxin is not the glucoside of choice.⁴

The more recent opinions and the experiences of various authors provoke the question—has the swing from the whole-leaf digitalis to the use of digitoxin been wise or justified? L. B. S.

BIBLIOGRAPHY

1. Master, Arthur M. Digitalis Intoxication. J. A. M. A. 137:531, June 5, 1948.
2. Conference on Therapy from (C.U.M.C. and N.Y.H.). The Dose of a Drug. American Jr. Med. 2:296-308, March, 1947.
3. Conference on Therapy—Cornell University Medical College and the New York Hospital—Digitalis versus Digitoxin. N. Y. State Jr. Med. 45:1676-1682, 1945.
4. DeGraff, Arthur C.; Batterman, Robert C., and Rose, O. Allen. Digitoxin: Its Evaluation in Initial Digitalization of the Patient with Congestive Heart Failure. J.A.M.A. 138:475-479, 1948.
5. Flaxman, Nathan: Digitoxin Poisoning—Report of 30 Cases. Amer. J. Med. Sc. 216: 179-182, Aug. 1948.
6. Stewart, Harold J., and Newman, Abbott A. The Amount of Digitoxin (Digitaline Native) Required for Adequate Digitalization. Amer. Heart Jr. 36: 641-667, Nov. 1948.

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COCCIDIOIDOMYCOSIS looms up before Arizona physicians as a serious problem.

While we have been busy with something else, or before some of us came to Arizona, the "valley fever" of California's San Joaquin area has burgeoned-out into the "desert fever" of the southwest. Like a gross and insolent tough-guy it leers at us, threatening health and peace of mind—and publicly, too!

At the moment it is very tough indeed, since we know little of its modes and manners, and control and treatment are—to use the softest of terms—expectant. It presents a challenge and an opportunity to Arizona medicine; it is a "medical frontier" which could be pioneered by someone in Arizona.

The disease is more than a threat to medical pride; it is a hazard to people in large areas of the state. We all know residents and visitors to the southern communities who have developed the disease—perhaps a few friends, several physicians, a minister, the head of a school, the wife of that rancher, etcetera; they usually recover, but often undergo months of invalidism. It throws a shadow on the state as a resort and a place to live. It is a community problem in that respect, and the means of solution is also largely one which will require community effort.

A thumb-nail sketch of "valley fever" (we follow an ancient custom of blaming the disease on some other area) contains many blank spaces, but there are several new pieces of information available. The disease is much like tuberculosis, in that most people (in the desert areas) are exposed; some are infected, develop a primary lesion, and a skin-sensitivity to coccidioidin; only a small percentage develop active pulmonary disease, and even fewer have extrapulmonary lesions. The lung lesions are also similar to tuberculosis in that infiltration, cavitation, fibrosis, etc., may occur, various sorts of progress may follow, and the human body has a considerable resistance to the condition. Skin-test reactors are relatively immune to reinfection, and the immunity is said to be of long duration.

The *methods of diagnosis* include sputum smears and culture, chest x-rays, a specific skin-test, and a blood serology test. Mass-survey films should prove of considerable help in involved

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districts. The knowledge that erythema nodosum occurs in 5 to 15% of the cases is also a valuable lead.

The *causative agent* is a fungus, *Coccidioides immitis*. It exists in several forms—the *spherules*, or *sporangia*, which grow in vivo and which contain round *spores*; the cylindrical *chlamydo-spores*, which develop from spores in the soil, or in the form of mycelia in cultures. Spherules in lesions may rupture, and the spores form other spherules. A confusing element has been the occasional finding of chlamydo-spores in human lesions, and of spherules developing in cultures.

The *epidemiology* has always been unclear. It has supposedly been necessary for infected secretions from humans or animals to be "matured" in some way in the soil, in a certain climate, during a certain season, before they are able to be infectious by means of dust, wind, and inhalation. Rodents and other animals are known to be victims and vectors of the disease. The incubation time of the disease in humans is 8 to 21 days or more. The seasonal incidence is greatest in and after the hot rainy months, the peak in California and Arizona being in summer and late fall.

The late Dr. C. W. Mills, and Dr. O. J. Farness of Tucson were among the first to show that the disease could occur outside of California. The Army Medical Corps helped fill out the pattern during the recent war by showing the great frequency and quick occurrence of infection in certain areas of Arizona, California, New Mexico, and west Texas, where 10 to 80% of a group could develop skin reactions in six months. Negroes are far more susceptible to the disease than are whites.

It has been known that laboratory animals

could be inoculated parenterally by spherules, but it has been denied that animals or humans could be infected by spherules through the respiratory tract. This is a vital point, since it would mean that direct transmission between humans is not possible, and that infectious disease precautions are not necessary.

At this point we have new data. Dr. S. R. Rosenthal of Bruns Hospital in New Mexico reported in 1947 that animals can regularly be infected through the lungs by material from human or animal lesions. The pathology was similar to that of human disease.

The implications of these findings are important,—“desert fever is, to some extent, con-

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tagious as well as infectious." An aseptic technique should be used in caring for the patient, and by the patient in disposing of his bronchial secretions. It is essential to diagnose all cases in order to limit the spread.

There is no doubt that chlamydispores are the usual form of infectant, and dust is the most common vehicle. The need to practice dust-control in any desert community where the disease is endemic is of the utmost importance. Dr. C. E. Smith of Stanford University, who is the dean of all workers on every aspect of the problem, correlated the use of dust-control methods with the incidence of coccidioidomycosis at four army air-fields in the San Joaquin Valley (J.A.M.A., Dec. 7, 1946). Paving the roads, grassing the open spaces, paving the airport runways, and using a refined oil on the playing-fields were highly effective measures for reducing both the dust and the incidence of infection.

The complaints of Arizona residents and the comments of winter visitors about the wind-storms and dust usually go unnoticed. Recently, however, a New York allergist has received considerable publicity by stating that he could not recommend a certain city to his patients because of the dust. The complaints of residents and visitors are on the basis of dirt and discomfort, but the allergist's were based on his belief that dust is an allergic irritant—a belief which is not sound, since earth-dust is chiefly a physical irritant. Furthermore, it is only occasional in occurrence, and is not a major trouble-maker for asthmatics. The complaints would be much more solidly based if spread of coccidioides was listed as the major hazard of wind and dust.

Our efforts should be directed at several aspects of the problem. Diagnose the disease by all possible means; treat the patient as infectious; investigate the methods of transmission more thoroughly; clear up the rodent and animal reservoir; look for a specific therapy; limit the removal of vegetation for housing and other developments; and apply every possible means of dust-control in and around the cities.

Since the hazard is a serious one and the problem indigenous, it would seem wise for the medical profession, public health authorities, and civic groups to organize and promote a program for attempted control, as well as a program for research.

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THE A.M.A.'S PLAN OF BATTLE

At a meeting held at the A.M.A. headquarters in Chicago on February 12, attended by State Secretaries and one other doctor representing each state, and many other officials in the medical profession, the members of the "Planning Committee" outlined their preliminary plan for the broad educational program which is rapidly taking form. Dr. George F. Lull, Secretary and General Manager explained the finances of the Association. The A.M.A. has been financed by the advertising in its publications and the annual subscription to the A.M.A. Journal. A subscription to the Journal constitutes Fellowship in the A.M.A. There are about 70,000 Fellows. But there are over 150,000 members in the Association. In 1947 the Association operated in the red. Accordingly, the subscription to the Journal was raised from \$8 to \$12. So opera-

tions were at a small profit in 1948. But when the A.M.A. House of Delegates at the Interim Session in St. Louis decided to embark on their wide educational program, it was necessary to raise a large fund of money. Therefore, the \$25 assessment. The first step was the employment of public relations counsel. The firm of Whitaker and Baxter of San Francisco was selected. They were fresh from recent triumph in Cali-

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ifornia, where they successfully defeated Governor Earl Warren's program for compulsory health insurance. How the \$25 will be spent is outlined in this issue of the Journal.

The first W.M.D. Bill was introduced in Congress in 1943. It has been introduced each year since. But each year it has never emerged from committee. But most likely, ere you read this message, it will have been reported out of the House Committee on Health Education and Labor onto the floor of the House of Representatives. At that point the battle passes to the individual doctors over the country. The A.M.A. will have a well-staffed office in Washington, D. C. for the purpose of furnishing information to the law makers and officials in the national capital. But there will be no lobbying organizations. Every physician will be asked to write to his Senator and Congressman to explain why compulsory health insurance is wrong, undemocratic, and financially impracticable. But letters from the doctors will not be enough. Your Senators and Representatives already know that you do not want compulsory health insurance. You must explain to your patients and point out the policies of this dangerous legislation and the kind of medical care they will receive from the government and persuade them to write to Washington also.

During the Chicago meeting a letter of protest against the Special A.M.A. Assessment which was signed by 136 physicians over the country was read. The letter was published in the February 19 issue of the A.M.A. Journal, along with its signers. It is a sad revelation that many of our most well known physicians can think in such narrow channels. And the irony of the whole situation is that if you pick up an A.M.A. journal and read the index on the front page, or if you attend a Scientific Session of the A.M.A. you will see these same names cluttering up the entire program. It is not difficult to understand why the names of full-time professors of medicine in our Universities and Colleges should appear on such a list, because from these sources emanate the most glowing signs and utterances of Communism that we see today. And all this kind of publicity must give much comfort to Mr. Ewing and Dr. Dingall. But the most accurate information at this time is that about 85% of the profession has given full accord to the \$25 assessment and the program which is being inaugurated.

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Personal Notes

Two new physicians were appointed to the staff of the Arizona Public Health Department by **DR. J. P. WARD**, superintendent. **DR. WARD** announced the appointment of **DR. LAD R. MAZERA** to become acting director of maternal and child health, and **DR. EDWIN H. WEST** as assistant director of the Tucson-Pima county health unit. **DR. MAZERA** formerly served as assistant director of the Maricopa county health unit and **DR. WEST** formerly served at Lucedale, Mississippi.

DR. WM. HEALY of Boston spoke at the University of Arizona on "Changing Approaches to the Understanding of Behavior." **DR. HEALY** is a psychiatrist and director of Boston's Baker Guidance Center.

A bill has been presented to the Arizona legislature which requires a premarital medical examination for venereal diseases. The tests must be made not more than three days or less than one day before issuance of license. This would coincide with California requirements.

DR. MARGUERITE WILLIAMS, Tucson, spoke on the subject "Alcoholism: What Can Be Done About It?" in Tucson during January.

DR. ERASMUS RODRIQUEZ BALAQUER, who has been aiding relief work in the Navajo area in Mexico, has praised the help received

from Tucson and Phoenix in a report at Agua Prieta, Sonora. Few fatalities and no epidemics occurred during the flood.

Notice was received in January that the actual allocation of \$240,426 by the U. S. Public Health Service had been made to St. Mary's Hospital in Tucson. This represents one-third of 49% of the total \$1,472,000 which the new addition is to cost. The capacity of the hospital will be increased from 221 beds and 35 bassinets to 341 beds and 52 bassinets. New surgical facilities and an entire floor for pediatrics are included.

Application has been made for federal funds 1949-50 allotment, to convert the Comstock Children's Hospital into a complete children's hospital. Comstock has been restricted to tuberculosis and crippled patients. The hospital was originally financed by funds from the Author Harold Bell Wright, and improvements were made in 1944 from gifts by the Navy Indoctration School at the University.

DR. NORMAN A. JACOBSON died at the age of 41 years at his home in Tucson. He was a member of the Thomas-Davis Clinic. He is survived by his wife, daughter and mother, three brothers and three sisters.

DR. CLARENCE R. KROEGER of Tucson has become health officer for Imperial County, California with his offices at El Centro. **DR. KROEGER** has been assistant to **DR. L. H. HOWARD** in the Pima County Health Department since 1943. He is a long time resident of Tucson and the brother of **DR. HILDA KROEGER**.

DR. ROBERT E. HASTINGS, an orthopedic surgeon who has practiced in Tucson before and since World War II, addressed the Arizona Chapter of American Physical Therapy Association on "Low Back Pain."

DR. JAMES P. WARD, Arizona Public Health Director, has said that 29,921 cases of communicable diseases were reported during 1948. Influenza topped the list with 11,225 cases, measles 5,291, tuberculosis 2,357.

A bill to help control brucellosis in Arizona has been proposed by **DR. F. D. McMAHON**, state veterinarian, and approved by **DR. OSCAR SUSSMAN**, consultant in Arizona on loan from U. S. P. H. S.

DR. JOSHUA P. WOOD, Jr., of Tucson has been relieved from active duty in the U. S. Army Medical Corps.

DR. MILTON SEMOFF, a pediatrician of Tucson, has recently addressed a Service Club on "The Rh. Factor in Relation to Newborn Babies" and has urged the routine use of premarital blood classification tests.

DR. HAROLD KOHL of Tucson, president of the Arizona Medical Association, and **DR. ARTHUR PRESENT**, Tucson radiologist, were members of a panel which discussed recent advances in the field of medicine at a University of Arizona Forum. They were accompanied by Prof. Geo. Caldwell, head of the Zoology Department.

(Continued on Page 74)

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Woman's Auxiliary

The Woman's Auxiliary to the Yavapai County Medical Society has just completed a drive to raise funds for the purchase of an iron lung for the city of Prescott and vicinity. The campaign proved to be most successful and far exceeded the goal set by the Auxiliary.

Realizing the dire necessity for an iron lung for emergency cases in the Prescott area, the Auxiliary undertook this project. The response was so generous that the iron lung and its accessories were assured in less than one week's time. The equipment was selected by a committee from the Yavapai County Medical Society and delivery is expected in about two weeks.

The February meeting was held on the eighth, preceded by a luncheon. The Auxiliary voted to go on record as officially endorsing the establishment of the Children's Colony according to plans submitted by the Children's Colony Board, urging immediate action.

The Auxiliary will furnish birthday cakes for the month of February to patients at the Veterans Hospital at Whipple.

Every member is busy preparing for the Annual Rummage Sale to be held March 4 and 5. Each year this has been a most successful project, the proceeds of which are given to the Cancer Society.

Margaret Southworth,
Yavapai Publicity Chairman.

Biographical Sketches

Mrs. Ernst A. Born, president of the Woman's Auxiliary to the Yavapai County Medical Society, was born in Pittsburgh, Pennsylvania, but spent her early life in Chicago, Illinois.

Mrs. Born attended Gulf Park College, Mississippi, and Northwestern University. She has been in Arizona about ten years, and is active in the affairs of the Hassayampa Country Club, at present serving as chairman of golf.

Mrs. Harry T. Southworth was president of the Woman's Auxiliary to the Arizona Medical Association for the year 1947-1948. She has also served as legislative chairman and treasurer of the State Auxiliary, and president of the Yavapai County Auxiliary. At present, she is a



Mrs. Harry T. Southworth, Prescott
Past President, Arizona State Medical
Association Auxiliary

member of the Board of Directors of the State Auxiliary.

Mrs. Southworth was born in Prescott, Arizona, and is a graduate of Mills College, California. She is active in the Camp Fire Girls and the Parent-Teachers Association, and is a member of the Advisory Counsel of the Arizona Tuberculosis and Health Association.



Mrs. Alvin Kirmse, Whipple

Evelyn Jones Kirmse (Mrs. Alvin Kirmse), wife of Dr. Alvin Kirmse of Whipple Veterans Administration Staff, is secretary of The Woman's Auxiliary to the Yavapai County Medical Society.

Mrs. Kirmse was born in Washington, D. C. Before her marriage, she was Dean of Women at the University of Arizona. Formerly she served as Secretary of the National Association of Deans of Women.

Mrs. Kirmse is very active in a great number of organizations. While living in Tucson, she was president of the Pima County Auxiliary.

Mrs. Henry A. Hough, recording secretary of the Woman's Auxiliary to the Arizona Medical Association, was born in Illinois, educated in Illinois schools and taught there for four years.

She was married in 1919 to Dr. Henry A. Hough who is an Ophthalmologist in Prescott

Mrs. Hough has been active in both County and State Auxiliary as well as working in Red Cross and Garden Club for many years. She has served as president of the Yavapai County Auxiliary.



Mrs. Henry A. Hough, Prescott

Mrs. Joseph P. McNally, treasurer of the Woman's Auxiliary to the Yavapai County Medical Society, was born in Hanford, California. She attended St. Mary's School of Nursing in San Francisco.

Mrs. McNally is active in the Elks Ladies, Woman's Club and the Prescott Camera Club. She is a past president of the Yavapai County Auxiliary.



Mrs. Joseph McNally, Prescott

(Continued from Page 70)

ment, and the moderator **DR. R. L. NUGENT**, Vice-president of the U. of A. and former secretary of the State Basic Science Board.

DR. R. K. HAUSMANN addressed the February meeting of the medical staff, Tucson Medical Center on "An Analysis of Cesarean Sections." Obstetricians **CARRELL, NEWCOMB,** and **BRAINARD** led the discussion. **DR. LOUIS HIRSCH** gave a one-minute paper on "I. V. Glucose Tolerance Test."

DR. J. DONALD FRANCIS, Tucson surgeon, is taking a year's leave of absence from his practice. He will live and have an office in Santa Rosa, California. His associate, **DR. SCHWARTZMAN**, will carry on while he is away.

DR. ROBERT HASTINGS of Tucson attended the Chicago meetings of the Academy of Orthopedics in January.

DR. HOWARD JAMES of Tucson attended a meeting as guest of the Obstetric Staff of the Lying-In Hospital during a recent visit in New York City.

The Editors wish personal news items to be submitted from throughout the state on the following:—(a) information on visiting physicians presenting papers to various hospitals and societies. (b) academic or honorary appointments, such as admission to various boards or societies. (c) Trips to various medical meetings by physicians and (d) results of elections in various societies.

DR. BLAIR W. SAYLOR received the degree of Master of Medical Science from the University of Pennsylvania at the convocation on February 12, 1949.

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